PRIEST RAPIDS HYDROELECTRIC PROJECT

[No. 83-12]

HEARINGS

BEFORE THE

SUBCOMMITTEE ON FLOOD CONTROL

OF THE

COMMITTEE ON PUBLIC WORKS

HOUSE OF REPRESENTATIVES

EIGHTY-THIRD CONGRESS

FIRST AND SECOND SESSIONS

ON

H. R. 4898 and H. R. 4899

JUNE 11, JULY 22, 1953, AND FEBRUARY 1, 1954

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PRIEST RAPIDS HYDROELECTRIC PROJECT

THURSDAY, JUNE 11, 1953

HOUSE OF REPRESENTATIVES,
COMMITTEE ON PUBLIC WORKS,
SUBCOMMITTEE ON FLOOD CONTROL,
Washington, D. C.

The subcommittee met, pursuant to call, at 2 p. m., in room 1435, New House Office Building, Hon. Russell V. Mack, chairman of the subcommittee, presiding.

Mr. MACK. This meeting of the Flood Control Subcommittee of the Committee on Public Works of the House of Representatives will now be in session.

The purpose of this meeting is to consider the identical bills, H. R. 4898, by Mr. Holmes, of Washington, and H. R. 4899, by Mr. Magnuson, of Washington.

(The bills, H. R. 4898 and H. R. 4899, are as follows:)

[H. R. 4898, 83d Cong., 1st sess.]

A BILL To provide for the development of the Priest Rapids site on the Columbia River, Washington, under a license issued pursuant to the Federal Power Act

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Flood Control Act of 1950 (64 Stat. 170, 179), insofar as it adopted and authorized to be prosecuted the Priest Rapids Dam on the Columbia River, Washington, substantially in accordance with the plans recommended in the report of the Chief of Engineers dated June 28, 1949, contained in House Document Numbered 531, Eighty-first Congress, second session, is hereby modified to permit the development of the Priest Rapids site by Public Utility District Number Two, of Grant County, Washington, or such district or its successor in combination with such other utilities as it may legally affiliate with, under and in accordance with the terms and conditions of a license duly issued pursuant to the Federal Power Act. Such license shall authorize the development of such site in such a manner as to provide substantially the same benefits with respect to hydroelectric power as would be provided in the plans recommended by the Chief of Engineers in such report, and to permit further construction with respect to flood control and navigation as authorized in section 2 of this Act.

SEC. 2. The authorization in such Act is further modified to authorize the Department of the Army to add such flood-control features as are recommended in such report to any dam constructed at the Priest Rapids site pursuant to the provisions of this Act.

SEC. 3. The Department of the Army shall review any plans submitted to the Federal Power Commission for the purpose of acquiring a license to develop the Priest Rapids site or any other site in connection therewith, and may submit recommendations with respect to such plans to the Commission.

SEC. 4. If an application for a license under the Federal Power Act to authorize the development of the Priest Rapids site is not filed with the Federal Power Commission prior to the date which is two years after the date of the enactment of this Act, the provisions of this Act shall not be effective after such date and the authorization for the development of the Priest Rapids site contained in the Flood Control Act of 1950 shall have the same status it would have had if this Act had not been enacted. Notwithstanding any other provision of law, the Federal Power Commission shall act, on any such application filed with it prior to such date, within one year after the date on which such application is so filed.

[H. R. 4899, 83d Cong., 1st sess.]

A BILL To provide for the development of the Priest Rapids site on the Columbia River, Washington, under a license issued pursuant to the Federal Power Act

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Flood Control Act of 1950 (64 Stat. 170, 179), insofar as it adopted and authorized to be prosecuted the Priest Rapids Dam on the Columbia River, Washington, substantially in accordance with the plans recommended in the report of the Chief of Engineers dated June 28, 1949, contained in House Document Numbered 531, Eighty-first Congress, second session, is hereby modified to permit the development of the Priest Rapids site by Public Utility District Number Two, of Grant County, Washington, or such district or its successor in combination with such other utilities as it may legally affiliate with, under and in accordance with the terms and conditions of a license duly issued pursuant to the Federal Power Act. Such license shall authorize the development of such site in such a manner as to provide substantially the same benefits with respect to hydroelectric power as would be provided in the plans recommended by the Chief of Engineers in such report, and to permit further construction with respect to flood control and navigation as authorized in section 2 of this Act.

SEC. 2. The authorization in such Act is further modified to authorize the Department of the Army to add such flood control features as are recommended in such report to any dam constructed at the Priest Rapids site pursuant to the provisions of this Act.

SEC. 3. The Department of the Army shall review any plans submitted to the Federal Power Commission for the purpose of acquiring a license to develop the Priest Rapids site or any other site in connection therewith, and may submit recommendations with respect to such plans to the Commission.

SEC. 4. If an application for a license under the Federal Power Act to authorize the development of the Priest Rapids site is not filed with the Federal Power Commission prior to the date which is two years after the date of the enactment of this Act, the provisions of this Act shall not be effective after such date and the authorization for the development of the Priest Rapids site contained in the Flood Control Act of 1950 shall have the same status it would have had if this Act had not been enacted. Nothwithstanding any other provision of law, the Federal Power Commission shall act, on any such application filed with it prior to such date, within one year after the date on which such application is so filed.

Mr. MACK. The committee will first hear a statement by Congressman Holmes concerning the intent of this legislation.

STATEMENT OF HON. HAL HOLMES, A REPRESENTATIVE IN CONGRESS FROM THE FOURTH DISTRICT OF THE STATE OF WASHINGTON

Mr. HOLMES. Mr. Chairman, gentlemen of the committee, permit me to express my appreciation to you and the chairman, Mr. Russell D. Mack, of the Subcommittee on Public Works, for holding a hearing upon my bill, H. R. 4898, introduced April 28, 1953.

The bill provides for the development of the Priest Rapids site on the Columbia River, Wash., under license issued pursuant to the Federal Power Act.

The bill is unique in the fact that it is not asking for Federal funds. As you know, under the Flood Control Act of 1950—Statute 64, 170, 179—the Priest Rapids Dam on the Columbia River, State of Washington, was authorized as recommended in the report of the Chief of Engineers dated June 28, 1949. That authorization is contained in House Document 531, 81st Congress, 2d session.

This bill asks to modify the authorization for the development of the Priest Rapids site on the Columbia River in the State of Washington and to grant permission to Public Utility District No. 2 of Grant

County, Wash., or such district or its successor in combination with such other utility districts as it may legally affiliate with under and in accordance with the terms and conditions of license duly issued pursuant to the Federal Power Act for a period of time to see if it can build the project.

If the application by the public utility district for a license under the Federal Power Act is not filed with the Federal Power Commission prior to the date, which is 2 years after the date of the enactment of this legislation, then the provisions of this act shall not be effective after such date and the authorization for the development of the Priest Rapids site contained in the Flood Control Act of 1950 shall have the same status it would have had if this act had not been enacted.

Notwithstanding any other provision of the law, the Federal Power Commission shall act on any such application filed with it prior to such date within 1 year after the date on which this application is filed.

In digressing, let me say the bill allows 2 years for them to file the application—the public utility district—and then the law requires, after the application is filed, the Federal Power Commission must act on the license within a 1-year period after the application is filed with the Federal Power Commission.

I particularly wanted to point out the facts to the committee in relation to the bill to specifically show this is not a deauthorization procedure, but a modification of authorization to permit the Grant County Public Utility District this period of time to see if they can go ahead and build the project and become licensed under the Federal Power Commission to do so.

It seems to me that in the face of the terrific demand for power in the Pacific Northwest and the willingness of the public-utility district to see if they can finance the development of the Priest Rapids site they should be granted the opportunity to do so.

As you are well aware, the Pacific Northwest is growing very rapidly. Our population has increased approximately 40 percent in the past few years. We are in a power-shortage area, and we want to move along as rapidly as possible in developing our program.

I look upon this bill as a possible approach that will help and augment, but not take the place of, the overall development program taking place in that area.

This bill has support from private and public utilities alike, from various interested chambers of commerce throughout the area, and with more than casual interest being manifested by what may possibly be worked out on the part of various cities in the area, with both municipally owned powerplants and privately owned powerplants.

This bill should in no way be construed as interfering with the Army engineers' program in building dams, for we want them to continue to build dams; nor should it interfere with flood control or navigational features, for it requires substantially the same benefit with respect to the power developed as would be provided in the plans recommended by the Chief of Engineers, and would permit further construction with respect to flood control and navigation as authorized in section 2.

There are several witnesses present, including the manager of the Grant County Public Utility District, Mr. Glenn Smothers of Ephrata,

Wash.; Mr. Axel Strom of Ephrata, Wash., who was formerly connected in business research at the University of Washington; Mr. Frank Bell of Ephrata, Wash., former United States Commissioner of Fisheries and Commissioner at the time Bonneville Dam was built on the Columbia; Mr. Willey of the engineering firm of Harza Co., Chicago, Ill., that the Grant County Public Utility District has employed to go into the matter; and Mr. Whitbeck of Blair, Rollins & Co., Inc., New York City, who can testify on the program of financing and bond issues.

Let me also state that Mr. Don Magnuson, Congressman at Large from the State of Washington, has introduced an identical bill, H. R. 4899, and is likewise to be heard in support of this bill.

Mr. George Thomas, Washington, D. C., manager of the Seattle Chamber of Commerce, would like to have the opportunity to file a statement.

Thank you very much, Mr. Chairman, for permitting me to make this statement before your committee.

Mr. MACK. Do you have any questions, Mr. Angell?

Mr. ANGELL. What is the generating capacity of the project?

Mr. HOLMES. It will have a generating capacity of approximately 1,200,000 kilowatts. It is a big project.

Mr. ANGELL. Is there a reasonable prospect that the district will be able to finance it and carry it out?

Mr. HOLMES. They think so, and they have testimony here they would like to present for your record and hearing as to that point.

Mr. ANGELL. Is there any opposition in the area to this legislation?

Mr. HOLMES. It has not been brought to my attention, if there is.

Mr. ANGELL. That is all, Mr. Chairman.

Mr. MACK. Mr. Smith.

Mr. SMITH. I have no questions.

Mr. MACK. Mr. Holmes, the present authorization of the Federal Government is that we construct one dam of approximately 1,200,000 kilowatts installed capacity, is it not?

Mr. HOLMES. Yes.

Mr. MACK. And if the Grant County Public Utility District were to undertake this development, it is planned, as I understand, to build 2 dams instead of 1 high dam; is that correct?

Mr. HOLMES. Yes, but I would rather have you get that directly from the testimony of the engineer here, Mr. Willey, of the Harza Co., who will present that point to you and your committee.

Mr. MACK. Would you care to discuss whether we would obtain as much power from the Grant County operation of this development as we would from Federal operation of it?

Mr. HOLMES. Yes; I think they will get equivalent power.

Mr. MACK. The 2 small dams would generate as much electricity as the 1 large dam?

Mr. HOLMES. Approximately.

Mr. MACK. Will it or will it not provide as much flood control?

Mr. HOLMES. That is a question that would have to be worked out with the engineering experts here.

Mr. MACK. Is there flood control involved in this proposed project?

Mr. HOLMES. Yes, sir.

Mr. MACK. And navigation also?

Mr. HOLMES. Yes, sir.

Mr. MACK. Do you recall the estimated cost of building the high dam?

Mr. HOLMES. From the engineers' estimate, it will cost for the one high dam between the sums of 375 million to approximately 415 million.

Mr. MACK. All of which would be provided by the Federal Government through the Congress of the United States appropriations?

Mr. HOLMES. Yes, sir.

Mr. MACK. And if the Grant County Public Utility District were to take over this project, then Grant County through its own financing would assume all of those costs?

Mr. HOLMES. Yes, sir, with the possible exception of some navigation and flood-control charges.

Mr. MACK. Would it be necessary to provide for the flood-control and navigation features of the dam when the original structure is built or could construction of these be delayed until later?

Mr. HOLMES. I think facilities made now make it possible for it to be added at any time.

Mr. MACK. Are there any other questions?

Mr. ANGELL. May I ask this additional question?

Mr. MACK. Mr. Angell.

Mr. ANGELL. Just where is the project located in comparison with the other projects on the Columbia River?

Mr. HOLMES. We have a map over there. I can't get to it. Will you point it out there on the map, if you will, please, Mr. Willey.

Mr. ANGELL. Below Chief Joseph and above McNary Dam.

Mr. WILLEY. It is above McNary and below Rocky Island.

Mr. ANGELL. That is about 75 miles downstream from Rocky Island, isn't it?

Mr. WILLEY. It is about 55 miles downstream from the Rock Island Dam, Mr. Angell.

Mr. MACK. Would as much storage capacity be provided by the 2 low dams as by the 1 large dam?

Mr. HOLMES. Approximately; yes.

Mr. ANGELL. If it were built by the Public Utility District, would the flood-control and navigation features still be under the jurisdiction of the Army engineers?

Mr. HOLMES. Yes, sir.

Mr. ANGELL. That is all, Mr. Chairman.

Mr. MACK. Congressman Magnuson, would you like to make a statement at this time?

STATEMENT OF HON. DON MAGNUSON, A REPRESENTATIVE IN CONGRESS, AT LARGE, FROM THE STATE OF WASHINGTON

Mr. MAGNUSON. I would like to, Mr. Chairman.

Thank you for giving me the opportunity.

Owing to the serious shortage of electric energy which has prevailed in the Pacific Northwest for several years, and which will continue for many years to come, it is very important that we take all feasible steps aimed at supplying some of the urgently needed energy for the area.

Pending before this subcommittee are companion bills which have been introduced by Representative Hal Holmes and by myself, H. R.

4898 and H. R. 4899, which would modify existing congressional authority for construction of a multipurpose project at Priest Rapids on the Columbia River and which would permit the public-utility district of Grant County, Wash., to finance and build a dam at the Priest Rapids site.

I trust that this committee will speed action on this legislation, which would be a big step toward supplying a portion of the electric energy which the Northwest requires at a date much earlier than we could expect to have power from Priest Rapids under any other construction plan.

Approval of this legislation by the Congress would enable the Grant County Public Utility District to begin producing power by 1959 or 1960, at least 5 or 6 years earlier than it appears we could have power from Priest Rapids through a Corps of Engineers' project.

I want to emphasize that approval of this legislation would not involve any conflict with the broad program of Federal resources development, which I strongly favor. Approval of the legislation, instead, would be an adjunct to and would supplement the Federal power program.

Under this legislation, application to the Federal Power Commission for a license is required within 2 years of the date of enactment, and action by the Commission is required within 1 year after the application is filed. In the event that the Grant County Public Utility District does not act, the existing authorization to the Corps of Engineers would continue.

I might add that I have had a good deal of correspondence from the State of Washington in support of this legislation. There is a great interest, not only in the power aspect of the project but also in the flood-control and navigation features which would be allowed for under the proposed design.

The Chamber of Commerce of Wenatchee, Wash., has urged the inclusion of locks and channel improvement at the earliest possible date. Under the proposed legislation being considered, I am confident that entirely satisfactory provision can be made for these phases of the development.

It is important to recognize, I think, that the purpose of this proposed legislation is to expedite hydroelectric development in the Pacific Northwest. The proposal would open the way for the Grant County Public Utility District to do today what the Corps of Engineers plans to do later, with the requirement, of course, that the public-utility-district plan will conform to the overall scheme of development of river resources as planned by the engineers.

And I know that the job of getting the dam constructed at the earliest possible time is all that concerns the public-utility district. It recognizes the urgency of meeting the Northwest's power shortage and is willing to undertake the responsibility of sponsorship in the interest of advancing the project several years. By the same token, I know the public-utility district would be only too happy to step aside if Federal construction within the same time limts could be arranged.

I will not burden this subcommittee at this time with a detailed account of the Pacific Northwest's emergent need for more hydroelectric energy. It is a situation with which you are entirely familiar,

and I only would suggest that any proposal which would expedite such development should receive your most careful consideration.

Thank you.

Mr. MACK. Mr. Magnuson, is it your opinion that the passage of this bill will speed up and expedite supplying of a greater amount of power to the Pacific Northwest?

Mr. MAGNUSON. It is, Mr. Chairman. I think we should gain several years by this authorization, if granted.

Mr. MACK. Do you feel that the construction of this dam, or these dams, by the Grant County Public Utility District would have the effect of giving us less storage and thereby cutting down the production of power in the dams downstream?

Mr. MAGNUSON. Well, I understand that the storage would be reasonably comparable.

Mr. MACK. There would be no particular change in downstream production whichever plan is carried out?

Mr. MAGNUSON. That is right.

Mr. MACK. Do you have any questions, Mr. Angell?

Mr. ANGELL. Mr. Magnuson, how would it be financed?

Mr. MAGNUSON. By the sale of revenue bonds.

Mr. ANGELL. What rate of interest do you figure would be required for bonds of that type?

Would the entire cost be financed by bonds?

Mr. MAGNUSON. I believe so; yes.

Mr. ANGELL. Do they have taxing power to tax the district for a portion of it?

Mr. MAGNUSON. I think only 2 mills.

Mr. ANGELL. Have the courts passed on the validity of the combination between several public-utility districts in Washington united in a project of this type?

Mr. MAGNUSON. No. It is a new law which was just passed by the 1953 legislature and no court test has been started yet.

Mr. ANGELL. Is it contemplated that possibly several districts may unite in this project, if authority is given?

Mr. MAGNUSON. Yes; that is a definite possibility. They might include the municipal systems of Seattle and Tacoma.

Mr. ANGELL. I think that is all, Mr. Chairman.

Mr. MACK. Mr. Smith.

Mr. SMITH. Mr. Magnuson, do you think if this method of approval of the Priest Rapids project is given, the approval of this method is given by the Congress, that it is likely to result in a proposal that all the rest of the Columbia development be handled in this fashion?

Mr. MAGNUSON. I should hope not, Mr. Smith, because I think this Columbia River development program demands Federal participation because of its size, and this is in no way designed to displace the Federal Government in this field.

Mr. SMITH. Do you think that perhaps the appropriations committees that have been reluctant in the past to give the funds that you have been interested in out there might say, "This is the way to take care of the rest of these dams, the Dalles, McNary, and so forth"?

Mr. MAGNUSON. Of course, that is a possibility, but I think events would prove that the overall development of the river system there could not be achieved in this fashion.

Mr. SMITH. That is all.

Mr. MACK. Mr. Magnuson, do you know of any opposition from other public-utility districts or any other sources in the Pacific Northwest to this particular type of legislation?

Mr. MAGNUSON. I haven't had a single protest or criticism.

Mr. MACK. I heard today that the Spokesman Review had come out in favor of this type of legislation. Do you know whether this is true or not?

Mr. MAGNUSON. No: I haven't heard that, Mr. Chairman.

Mr. MACK. It is the largest newspaper in the inland area.

Do you know whether that is true or not, Mr. Holmes?

Mr. HOLMES. I didn't know they had come out in favor of it, but I can see no reason why they shouldn't be.

Mr. MACK. Any other questions?

Mr. WATTS. I would like to ask a question.

Mr. MACK. Oh, pardon me, Mr. Watts.

Mr. WATTS. What kind of an organization is the Public Utility District No. 2, Grant County, Wash.?

Mr. MAGNUSON. Well, it is a public agency, made up of the freeholders of Grant County.

Mr. WATTS. Cooperative?

Mr. MAGNUSON. Yes. Its function is to transmit and sell power.

Mr. ANGELL. Will the gentleman yield?

Mr. WATTS. Yes, sir.

Mr. ANGELL. Under the law of the State of Washington, a large number of public utility districts operate there?

Mr. MACK. Twenty-nine out of 39 counties.

Mr. MAGNUSON. Twenty-nine out of 39 counties have public utility districts.

Mr. ANGELL. And, like a municipal corporation, they carry on in a good many ways like a private organization.

Mr. MAGNUSON. That is correct.

Mr. WILLEY. The operation is by people who live in the vicinity.

Mr. MAGNUSON. That is correct.

Mr. WATTS. Is this dam they propose building to be built at the same site as the one previously proposed?

Mr. MAGNUSON. Yes: although this proposal permits 2 dams—2 low dams instead of 1 high dam—but 1 of them would be at the site.

Mr. WATTS. Would the other one be up or downstream?

Mr. MAGNUSON. Upstream.

Mr. ANGELL. Where?

Mr. MAGNUSON. At Beverly.

Mr. ANGELL. How far upstream is that?

Mr. WILLEY. About 15 miles.

Mr. HOLMES. Between 15 and 16 miles.

Mr. WATTS. What would be the height?

Mr. MAGNUSON. The ultimate height would be about 75 feet.

Mr. WILLEY. Height or elevation?

Mr. WATTS. The height.

Mr. WILLEY. The height would be approximately 75 feet. If you divided the 2 smaller ones into the large one, it would be about 75 feet, depending on the location.

Mr. ANGELL. Would they produce the same amount of hydroelectric power as the one dam in the Government plans?

Mr. MAGNUSON. Approximately.

Mr. WATTS. Do I understand one would be 150 and the other 75?

Mr. WILLEY. No; the single-site dam would be 150.

Mr. WATTS. The one dam would be 150 feet?

Mr. WILLEY. Yes.

Mr. WATTS. And you are going to build two 75 feet?

Mr. WILLEY. Well, no, that isn't quite exact. That isn't the exact proposal. I will cover that in this testimony.

Mr. WATTS. All right.

Mr. WILLEY. It isn't the exact proposal.

Mr. WATTS. I guess that is all.

Mr. MACK. Are there any other questions?

Mr. ANGELL. One other question: How far is that from the Rock Island project?

Mr. MAGNUSON. Around 50 to 55 miles.

Mr. ANGELL. Rock Island is below that?

Mr. HOLMES. No; above.

Mr. ANGELL. Rock Island is the private project. It is not a public project.

Mr. MAGNUSON. Yes.

Mr. MACK. Are there any other questions?

Thank you, Mr. Magnuson, for your testimony.

Our next witness will be Mr. Glenn Smothers.

STATEMENT OF GLENN SMOTHERS, MANAGER, PUBLIC UTILITY DISTRICT NO. 2, GRANT COUNTY, EPHRATA, WASH.

Mr. SMOTHERS. Thank you, Mr. Chairman.

Gentlemen, my name is Glenn Smothers. I am the manager of the Public Utility District No. 2 of Grant County, State of Washington, a corporation engaged in the business of distributing electric energy within the boundaries of Grant County.

Grant County is in the central part of the State of Washington, and contains the major part of the Columbia Basin irrigation project, a 1-million-acre project constructed by the United States Bureau of Reclamation, and now nearing completion.

Large numbers of new farms are presently being brought into production, and, as more land comes under irrigation, farm development will continue at an accelerated pace.

The power requirements of these new farmers, together with the requirements of processing plants and industries related thereto, aggravate an already critical power situation in the Pacific Northwest.

For this reason, the board of directors of our utility determined that an effort should be made to construct the Priest Rapids Dam on the Columbia River by local effort through financing with revenue bonds.

Accordingly, discussions were held with various chambers of commerce in the area, including Spokane, Seattle, Tacoma, and Portland, together with community leaders, electric distribution utilities, both public and private; the Corps of Engineers, the Atomic Energy Commission, Fish and Wildlife Service, and the Federal Power Commission.

General agreements were reached with these interested parties, and, encouraged by the general public acceptance of the idea of local development of the dam, it was decided to retain the Harza Engineering Co. of Chicago, Ill., to make a project evaluation study, to determine the economic and technical feasibility of the project.

Mr. Keith Willey, chief planning engineer of that company, is present today to present to you their findings.

At the same time, an economic study was made to determine the marketability of power to be produced by the dam, and the benefits to be derived therefrom.

I would like to file with you a letter from Seattle City Light——

Mr. MACK. Permission is granted.

Mr. SMOTHERS. And a letter from Tacoma City Light.

Mr. MACK. Also granted.

(The letters referred to are as follows:)

CITY OF TAKOMA,
DEPARTMENT OF PUBLIC UTILITIES,
Tacoma 2, Wash., May 27, 1953.

Mr. G. A. SMOTHERS,
Manager, Grant County PUD No. 2,
Ephrata, Wash.

DEAR GLENN: In connection with studies incidental to your proposed development on the Columbia River, it may be of interest to you to know what Tacoma's electrical requirements were this past year, and what loads are expected annually for the next several years. Forecasts are as listed in our report to the Federal Power Commission, form 14, dated March 23, 1953, and as used by the operating committee of the Northwest Power Pool in the preparation of its 1953–54 operating report.

Tacoma's gross system requirements during 1952 amounted to 1,551,561,000 kilowatt-hours, with a 60-minute peak of 267,000 kilowatts. Of this amount, Tacoma's own facilities generated 784,496,000 kilowatt-hours, and 767,065,000 kilowatt-hours were received from BPA as prime and interchange power. Tacoma now has an installed generating capacity of 238,000 kilowatts of hydro and 34,000 kilowatts of steam.

Estimates for future requirements are as follows:

Year	Estimated gross kilowatt-hours	Estimated 60-minute kilowatts	Year	Estimated gross kilowatt-hours	Estimated 60-minute kilowatts
1953	1,647,000,000	313,000	1959	2,614,000,000	478,000
1954	1,824,000,000	338,000	1960	2,823,000,000	515,000
1955	1,921,000,000	355,000	1961	3,049,000,000	557,000
1956	2,075,000,000	383,000	1962	3,293,000,000	602,000
1957	2,241,000,000	413,000	1963	3,556,000,000	650,000
1958	2,420,000,000	443,000			

As you know, Tacoma has plans for additional developments of its own. The larger of these is our proposed two dam, 460,000 kilowatt Cowlitz development, tentatively scheduled to start operations in October 1956, with alternate units coming in at 60-day intervals until completion in 1957. Start of construction on this development has been held up pending decision by the courts on certain legal matters. This development was originally planned in 1947 for completion in 1952. We anticipate that by the time the development can be brought into production the larger part of its power capability will be used by Tacoma for its own load and in any event, our power requirements will require its full output to go with that of our existing hydro plants by 1958 or 1959 at the latest.

Construction has been authorized at Tacoma's steam plant No. 2 of additional generating capacity consisting of a 20,000 kilowatt steam turbine unit scheduled to be in operation in March 1954 and two 4,000 gas turbines which will be put in service in December 1954 and March 1955 respectively.

In spite of these two proposed developments adding as they will, a very considerable amount to Tacoma's capability, we must look for additional sources of hydrogenerated energy if our normal rate of load growth experienced over the past 40 years is to continue. Ever since 1912 when the first Nisqually development was completed, the rate of load growth for the city of Takoma has amounted to approximately 10 percent per year cumulative. This results in the doubling of our load in approximately 8 years. You will notice that the above estimates indicate a more conservative rate of load growth than that figure.

The city of Seattle and the city of Tacoma operate their facilities so as to obtain the maximum benefit from the hydro resources of each city's facilities. Our rates of load growth have been approximately the same. Consequently, we will give serious consideration to any hydro development which will offer the possibility of providing our power requirements in the period from 1960 to 1970.

We have long felt that no single development on the Columbia River was too large for the cities to undertake as far as ability to utilize the power output is concerned and we look forward to cooperative undertakings in this State by public agencies with the view toward our supplying as much of our own needs as possible because of the fact that the Federal Government so far has not been able to keep up to date a sufficiently large construction program to meet our estimated requirements.

Yours very truly,

J. FRANK WARD,
Superintendent, Light Division.

CITY OF SEATTLE,
DEPARTMENT OF LIGHTING,
Seattle 4, Wash., May 25, 1953.

Mr. GLENN A. SMOTHERS,
Manager, Grant County PUD No. 2, Ephrata, Wash.

DEAR MR. SMOTHERS: We have followed with interest your efforts to secure the rights necessary for the Grant County Public Utility District No. 2 to proceed with the development of the Priest Rapids project on the Columbia River.

With respect to the disposition of the power and energy which will be produced by this project, we take this opportunity to present a review of the power-supply conditions for the city of Seattle's electric system as we now see them.

Seattle has been in the electric utility business for 48 years. Service to customers was first instituted in 1905. Since that time we have seen the business grow until in 1953 we are serving over 210,000 customers using over 2¼ billion kilowatt-hours per year. Our peak demand is expected to reach 600,000 kilowatts this year. Our total installed generating capability will amount to 603,000 kilowatts at the end of this year.

This capability is distributed among our generating plants as follows:

	Kilowatts
Cedar Falls hydro plant, Cedar River	30,000
Gorge hydro plant, Skagit River	108,000
Diablo hydro plant, Skagit River	132,000
Ross hydro plant, Skagit River	270,000
Newhalem hydro plant, Newhalem Creek	2,000
Total hydro	542,000
Lake Union steam plant	40,000
Georgetown steam plant	21,000
Total system peak capability	603,000

We will have room to install 1 additional 90,000-kilowatt generating unit at the Ross plant and it will be possible to increase the capability of the Gorge plant by about 42,000 kilowatts by building a new dam providing a higher head. With these additions, the total system peak capability will amount to 735,000 kilowatts. This is just about the end of economical development on the Skagit River. These installations could not be made before 1956.

Our long-term load estimates indicate that our system peak load will amount to 736 megawatts in January 1956 and continue to grow to over 1,00 megawatts in January 1961. The following data has been extracted from sections VII and

IX of the report of the western group of the Northwest power pool to the Federal Power Commission on FPC Form No. 14, dated March 23, 1953. These data show the estimated loads, the resources during adverse hydro conditions, and the computed amounts of power and energy required from other sources by the Seattle system, by years through June 1963:

Year ended June 30	Peak megawatts			Average megawatts		
	Load	Resources [1]	Deficit	Load	Resources [1]	Deficit
1954	642	588	54	328	253	75
1955	688	588	100	351	267	84
1956	736	588	148	376	267	109
1957	788	588	200	402	267	135
1958	842	588	254	431	267	164
1959	901	588	313	461	267	194
1960	965	588	377	493	267	226
1961	1,033	588	445	528	267	261
1962	1,105	588	517	565	267	298
1963	1,178	588	590	603	267	336

[1] Resources do not include fourth unit at Ross plant or high dam at Gorge plant as they are only under consideration and have not been scheduled.

It is, therefore, self-evident that Seattle must rely on sources of power supply other than its own generating plants from now on. The only other low-cost source is Columbia River hydro regardless of whether it is developed by the Federal Government or local agencies.

We believe that the development of the Priest Rapids project by a local agency or group of such agencies would be sound economically, particularly in view of the latest report on loads and resources of the Western Group of the Northwest Power Pool, which has been filed with the Federal Power Commission. This report shows a deficit in power supply coming up in 1959–60 even with a very conservative load growth estimate amounting to 4 percent annually compounded after 1955. New starts on Columbia River projects are a must if the area is to continue to grow.

Yours very truly,

E. R. HOFFMAN,
Superintendent of Lighting.

Mr. ANGELL. To what effect are those letters?

Mr. SMOTHERS. They are letters setting forth their anticipated power deficiencies during the next 10 years.

Mr. Axel Strom, economist, is also present today to give you further details in connection with need for immediate development of additional power in the area.

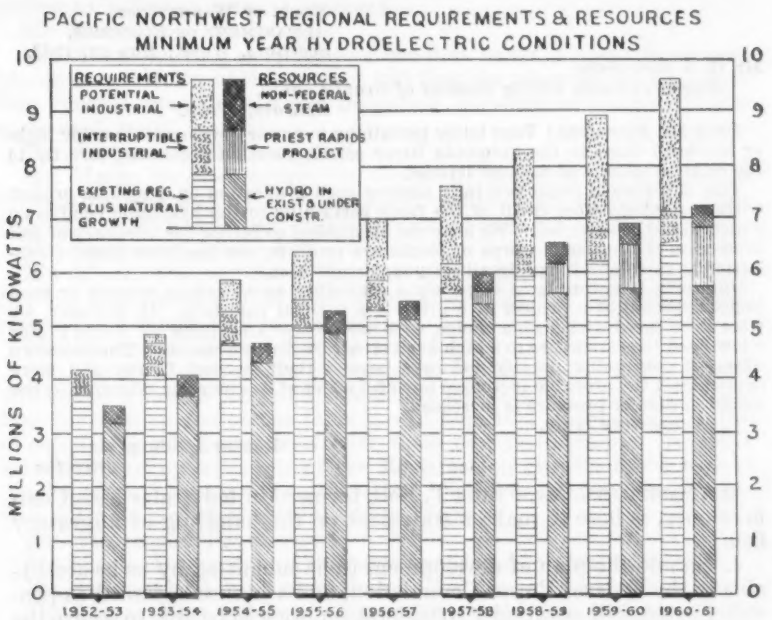
I am sure that the members of this honorable committee are familiar with the present power shortage in the Northwest, and the power curtailment of last winter, which made necessary the closing down of many essential industries during that period. The report of the West group of the Northwest power pool, an organization of Northwest electric utilities, both public and private, to the Federal Power Commission, which has been recently released, indicates a continuation of this condition.

This chart, which is taken from the facts presented in that report, shows that the power capabilities of Priest Rapids are needed immediately, if the normal load increase of that group are to continue to be served.

I would also like to have that chart made a part of the record, Mr. Chairman.

Mr. MACK. Permission granted.

(The chart referred to is as follows:)



Mr. SMOTHERS. This power, if developed by our utility, will be available for bus-bar sale to all members of the power tool, in such amounts as may be surplus to our requirements.

In planning this project, we have at all times kept in mind the optimum benefits to the area, particularly as outlined in the comprehensive plan of the 308 report of the corps with relation to power, flood control, fish conservation, and the security of the atomic-energy plant at Hanford, a few miles downstream from the dam. We feel that our plans have progressed far enough that we can state that:

1. We are ready, willing, and able to construct the facilities necessary to develop the power potential of the Columbia River in the reach between Priest Rapids and the existing dam at Rock Island in such a manner as not to interfere with any of the above benefits.

2. We are ready and willing to cooperate in our planning with the Corps of Engineers, Fish and Wildlife Service, and the Atomic Energy Commission to the fullest extent possible, in order to make possible the addition of flood control and navigation facilities at such time as the Congress may determine these features to be essential, and make the necessary appropriations therefor.

3. We are prepared to make provisions for the handling of migratory fish. We have had conversations with various persons charged with fish conservation, and I wish, at this time, to submit a letter from Mr. Schoettler, director of the Washington State Department of Fisheries, concerning their views on Priest Rapids Dam.

Mr. MACK. Without objection, so ordered.

(The letter referred to is as follows:)

STATE OF WASHINGTON,
DEPARTMENT OF FISHERIES,
Seattle 4, Wash., May 22, 1953.

Mr. G. A. SMOTHERS,
Manager, Public Utility District of Grant County,
Ephrata, Wash.

DEAR MR. SMOTHERS: Your letter pertaining to power developments using high- or low-head dams in the Columbia River asks a question pertaining directly to the relative heights of such structures.

This department could not fully answer such a question on a specific project without having before it all of the facts pertaining to the hydraulic conditions which would be expected. We have not been asked to review for adequacy of fish protection the proposed Corps of Engineers projects, nor has your district submitted to this department details of your proposition.

Our reply therefore must be purely a generality as we cannot express or even imply approval of a project at a given site without full data. If, however, we were to be faced with such a choice, with our present knowledge we would prefer a low-head type structure to a high-head structure for two reasons: The unknown effect of continuing gravity fishways beyond their present limits, and more particularly the probable increased harmful effect of downstream migrants as the height of dam or pressure is increased.

Yours very truly,

ROBERT J. SCHOETTLER,
Director

Mr. SMOTHERS. Mr. Frank T. Bell, former United States Fish Commissioner, is here to make a statement on the handling of migratory fish.

4. Should the plan of development to be submitted by us be acceptable to the Federal Power Commission, and a license be issued as provided in this bill now under consideration, we will be able to secure the necessary financing for the construction of the project. Mr. John Whitbeck, vice president of Blair-Rollins & Co., New York, is here to make a statement in connection with project financing.

Gentlemen, because the immediate development of Priest Rapids power is essential to the economy of our area, it is my hope that after you have given consideration to this, and the other testimony to be presented, that you will favor us with an early endorsement of this bill.

Thank you very much for your consideration in making it possible for me to present these facts to you.

Mr. MACK. Mr. Smothers, is this Grant County Public Utility District created under the laws of the State of Washington?

Mr. SMOTHERS. Yes, sir.

Mr. MACK. Does it have authority under those laws to levy a tax upon the residents of the area to help with the financing?

Mr. SMOTHERS. We have that authority.

Mr. MACK. And how much of a tax can you levy upon the people of the areas to be served?

Mr. SMOTHERS. Two mills.

Mr. MACK. What is the population of Grant County?

Mr. SMOTHERS. At the present time about 28,000.

Mr. MACK. And its principal city is what?

Mr. SMOTHERS. Ephrata.

Mr. MACK. And Grant County, you say, is in the heart of this Columbia irrigation district?

Mr. SMOTHERS. That's right.

Mr. MACK. And that district, when fully developed, will bring irrigation to 1,039,000 acres, I believe?

Mr. SMOTHERS. That's right.

Mr. MACK. During the past year the first water, I understand, was placed on a portion of this project and that the plans of the Reclamation Service contemplate the irrigation of some additional 80,000 acres each year?

Mr. SMOTHERS. That's right.

Mr. MACK. So that within the course of probably 12 to 14 years this entire, vast area of 1,039,000 acres, which is an area larger than the State of Rhode Island, will be under irrigation?

Mr. SMOTHERS. That's true.

Mr. MACK. Do you think that the statements of the Reclamation Service that there will be created opportunities for development of some 18,000 farms will be realized?

Mr. SMOTHERS. Yes; I think so.

Mr. MACK. Claims of the Reclamation Service, I believe, are there will be farm homes created for about 75,000 people in that area, and that for each person on the farm it will require 2 in the nearby cities to supply the goods and services to these new farm people. In other words, according to claims of the Reclamation Service there will be developed in this particular area about 200,000 to 250,000 new population within a period of possibly 12 to 15 years.

Mr. SMOTHERS. That's right.

Mr. MACK. How much of that area is covered by Grant County?

Mr. SMOTHERS. A little more than half.

Mr. MACK. How much of this power would you consume at the present time if the dam were already completed?

Mr. SMOTHERS. At the present time we're using about 40,000 kilowatts.

Mr. MACK. Of installed capacity?

Mr. SMOTHERS. No; not of installed capacity. The installed capacity would be 1,160,000 kilowatts.

Mr. MACK. And you could use 40,000 of that now?

Mr. SMOTHERS. We could use 40,000 right now.

Mr. MACK. So, the bulk of the electricity produced by these dams that you contemplate building would have to be sold to others?

Mr. SMOTHERS. At the present time, yes.

Mr. MACK. And you would sell as freely to a private company as you would to a public utility?

Mr. SMOTHERS. That's true.

Mr. MACK. Who would fix the rates you would charge?

Mr. SMOTHERS. They would be fixed by our board of directors and, of course, by the holders of the revenue bonds.

Mr. MACK. Would the State public service commission have anything to say about the rates which you might charge for the sale of that electricity?

Mr. SMOTHERS. No.

Mr. MACK. In other words, it would be a decision made entirely by the Grant County Public Utility District?

Mr. SMOTHERS. That's right.

Mr. MACK. There would probably be a provision in the contract for the sale of the bonds requiring that you charge sufficient rates to assure the repayment of the bonds at whatever interest was agreed upon?

Mr. SMOTHERS. That's true.

Mr. MACK. You might have an advantage over a private company in that these bonds, I presume, would be exempt from Federal taxation?

Mr. SMOTHERS. The revenues of those bonds would; yes.

Mr. MACK. Supposing this dam that you contemplate building, could not be completed at the costs that you figure, and for some reason you had to abandon this project; would the project, then, revert to the bondholders?

Mr. SMOTHERS. No; only the revenues are obligated.

Mr. MACK. Well, you contemplate building a dam here, let's say, and it is going to cost you a hundred million dollars, and you arrive at some point in the construction where you will find that your calculations have been wrong, or economic conditions have changed, and it is going to cost you a good deal more and you cannot complete the construction of it to place it in position to earn revenues. In that case, if the dam is a financial failure, who inherits the dam?

Mr. SMOTHERS. The freeholders of Grant County would inherit the dam.

Mr. MACK. But you owe these bondholders a certain amount of money. They would be entitled to take over the dam if you cannot repay the bonds; would they not?

Mr. SMOTHERS. May I answer that with a statement?

Mr. MACK. Yes.

Mr. SMOTHERS. Before the bonds could be sold, the bondholders would have to be assured by reputable engineers, engineers of national importance, that the estimates were conservative enough so that it would not be necessary to issue additional bonds. In fact, the bonds would probably not be issued until such time as construction contracts were signed.

Mr. MACK. Well, it happens in business today, day after day, that bonds are sold on enterprises and then, for some reason, the enterprise does not work out as the engineers and the promoters contemplated. In such circumstances, in private business, the bondholders gain possession of the property.

I am wondering if your company fails, if there is a possibility of possession passing out of the hands of Grant County into the hands of the bondholders, and eventually into the hands of the private power people.

Mr. SMOTHERS. No; because under the terms of the resolution creating the issuance of the bonds only the revenues from that project itself, the particular project that is being financed, will be obligated to the repayment of those bonds.

That is the reason that it takes sometimes quite a lot of engineering detail and a lot of assurance to bond buyers that the investment is sound before they buy them, because they only have a lien against the revenues of the project, not against the physical property.

Mr. MACK. You would not use your taxing power upon the people in the district to get this 2 mills a year to apply to this project if that were necessary?

Mr. SMOTHERS. If it were necessary, it's a possibility. That would be, of course, a matter to be determined by the directors.

Mr. MACK. Do you know of any opposition from any of these other public utility districts in the other 28 public power counties of the State to a proposal of this kind?

Mr. SMOTHERS. I know of none.

Mr. MACK. I think that is all.

Mr. ANGELL. The public utility district is limited to one county and covers the entire county of Grant?

Mr. SMOTHERS. That's true.

Mr. ANGELL. Would these bonds be a general obligation of the district?

Mr. SMOTHERS. No; they would be obligations only on the revenues of the project.

Mr. ANGELL. That provision is in the State law; is it?

Mr. SMOTHERS. Yes; that's right.

Mr. ANGELL. What would the 2 mills a year bring in, in taxes?

Mr. SMOTHERS. I'm sorry. I can't answer that.

Mr. ANGELL. What is the assessed value of Grant County?

Mr. SMOTHERS. It changes so rapidly that I really don't know.

Mr. ANGELL. Is there anyone here who knows the taxable value?

Mr. SMOTHERS. Probably Mr. Strom could answer your question.

Mr. STROM. I'm sorry. I haven't got that.

Mr. ANGELL. It is true, is it not, that the power that would be generated in addition to what you might need for your own district would or could go into the general grid system and be available to all the users of power in the Columbia River Basin?

Mr. SMOTHERS. That's true.

Mr. ANGELL. All of the power, both Federal and private there, is handled under the one grid system; is it not?

Mr. SMOTHERS. That's true.

Mr. ANGELL. I think that is all, Mr. Chairman.

Mr. MACK. Mr. Watts.

Mr. WATTS. I have one question. It probably better be addressed to the author of the bill, I suppose.

I notice in the bill you have a statement that if application for a license under the Federal Power Act is not filed with the Federal Power Commission within 2 years this law becomes null and void.

Mr. HOLMES. Yes, sir.

Mr. WATTS. All right. Now, what happens if you applied to the Federal Power Commission and for some good reason, and sufficient reason, they refused to grant you a license?

Mr. HOLMES. Then the public utility district does not have the possibility of going ahead with the development.

Mr. WATTS. No; but then you would have to reauthorize this thing under the Army engineers' method of construction?

Mr. HOLMES. No, sir; because the bill states specifically that if, through any reason whatsoever, either the public utility district cannot go ahead on account of the fact they have not been granted a license or if they have been granted a license and find they cannot go ahead effectively in the face of the engineering and the obligations of the issuing of bonds, that the authorization of the Priest Rapids Dam site specifically returns to status quo of the Army engineers, just as if this bill had never been enacted.

Mr. WATTS. I don't find that language in the bill.

Mr. HOLMES. Right here, sir:

If an application for a license under the Federal Power Act to authorize the development of the Priest Rapids site is not filed with the Federal Power Commission prior to the date which is 2 years after the date of the enactment of this act, the provisions of this act shall not be effective after such date and the authorization for the development of the Priest Rapids site contained in the Flood Control Act of 1950 shall have the same status it would have had if this act had not been enacted.

Mr. WATTS. That is true if you don't file your application; but if you do file an application, then you have obviated the language in this bill, as I take it, and then if the Power Commission doesn't grant the license what status are you in?

Mr. HOLMES. Then if the Power Commission does not grant the license, my understanding is that it returns to status quo.

Mr. WATTS. No; that is the point I have been trying to make. You could have a situation where you filed your application. Then you have accomplished everything this bill requires you to do; and then the Federal Power Commission comes along and, for some reason—I don't assume they will, but for some reason—fails to grant it. You have this authorization on the book. You have lived up to the letter of it by filing your application and, according to the way I interpret the language, it would not revert back if you filed your application; but I think that could be worked out.

Mr. HOLMES. Well, that is the intention of the bill, sir, and the Federal Power Commission has 1 year to act; and then it is the assumption in the bill—if we need to spell it out further, I should be very happy to do so—that if the Power Commission fails to act within that year, which I just stated there specifically, then it is my interpretation of the bill that the authorization returns to status quo as of the Flood Control Act of 1950 under the Army engineers.

Mr. MAGNUSON. Mr. Chairman, if I may, as the sponsor of the companion bill. I think perhaps Mr. Watts may have a point there—that the language should perhaps be broadened to take care of any contingency to return authorization to the engineers.

Mr. ANGELL. It is true is it not, that in any event, if the application is filed, say, before the termination of the 2-year period, it could hold this project in status quo for 3 years and the Federal Government would be precluded from proceeding during that time.

Mr. WATTS. That is the only thing I thought of: If the Power Commission, for good and sufficient reason, failed to grant you the license, then you wouldn't want to be put back in the position where you could do nothing, where the authorization would not revert back; and I don't say the bill could do it, but——

Mr. HOLMES. Most certainly that is what we want.

Mr. MAGNUSON. That is the intent?

Mr. HOLMES. That is the intent.

Mr. MACK. Mr. Smith.

Mr. SMITH. Under this grid system you have out there for the distribution of the Columbia power now, this Priest Rapids power would go into the existing system?

Mr. SMOTHERS. It would become a part of it; yes.

Mr. SMITH. Would you be required, under the law, under this authorization, to make it a part of that?

Mr. SMOTHERS. No. That organization is a completely voluntary organization, which is created by the utilities out there for the purpose of getting more efficient use of their generation plants and transmission plants. It is composed at the present time of 2 or 3 public-utility districts, 2 of the large municipals, the cities of Seattle and Tacoma, and 8 private power companies; but it is a strictly voluntary organization and has no legal status.

Mr. SMITH. I was thinking in terms of the normal preferences. If this project is developed by the engineers, the so-called preferences in regard to the sale of power would be offered?

Mr. SMOTHERS. Yes.

Mr. SMITH. What effect would the development by your district have in regard to those lines?

Mr. SMOTHERS. Well, the northwest power pool is a whole lot like a reservoir. If we have a pump, a generator that is putting additional power into that pool, it doesn't make any difference much who uses it at one point. If that pump is operating, there's more power for someone else to use at another point.

Mr. ANGELL. In other words, you get credit for the power you pump into the pool and whatever you take out you are charged with?

Mr. SMOTHERS. That's right.

Mr. SMITH. But still there is this voluntary arrangement, and if, for some reason, you wanted to keep it all in Grant County, you could keep it in Grant County, couldn't you, if this bill is passed?

Mr. SMOTHERS. Well, yes; we could, if we had the sale for it, if we had the use for it there.

Mr. SMITH. For instance, if you all had a big industrial development coming into Grant County, you all could assure them of that much power, completely, under this law?

Mr. SMOTHERS. That is correct.

Mr. SMITH. You wouldn't have to enter, under this system, into a cooperative arrangement with all the other power producers in the area?

Mr. SMOTHERS. That's true.

Mr. SMITH. In regard to the rate schedule, would the Power Commission have any authority in regard to the rates, if they gave you the license?

Mr. SMOTHERS. No; I think not. They would have a certain amount of jurisdiction in the assuring of adequate revenues to operate the project. The main control of rates will be two factors:

(1) The amount of money and the amount of annual revenue required per year to pay operating expenses and retire your revenue bonds.

(2) The competition that we will have from other power producers in the area, including the Federal Government. Our power will have to be sold at a rate that is comparable.

Mr. ANGELL. Will the gentleman yield at that point?

Mr. SMITH. I will yield.

Mr. ANGELL. Is there any State agency in the State of Washington passing on public power, determining rates, and so forth?

Mr. SMOTHERS. No.

Mr. ANGELL. Would the Federal Power Commission have jurisdiction over it?

Mr. SMOTHERS. No; the public-utility districts are specifically exempted by the law.

Mr. SMITH. You people out there know more about it, but do you think there is any possibility of the situation ever arising where some safeguard might not be made? Would it not be proper to make some safeguard to make sure sometime in the future Grant County wouldn't want to take all this power to itself, since it is going to be a pretty large development beyond what you might consider would ever be necessary for use in Grant County?

Mr. SMOTHERS. That's possible. After all, the law creating the public-utility district of Grant County was made by the people; and if the people feel that we should have that control, why, they certainly would act, I think.

Mr. SMITH. In other words, you would be using a reservoir here that normally would be a part of the Columbia program. The whole Columbia Basin development program is not considered as belonging to just Grant County and if we approve this, we would be giving you authority to take it and keep it for Grant County if you wanted it.

Mr. SMOTHERS. If we were able to.

Mr. SMITH. Well, in respect to the section 2 of the bill—the authorization made that the Department of the Army would develop flood-control features in connection with the dams—in the construction of those flood-control features, to make the most economic construction, the most sensible construction, they would have to be built at the same time you are constructing your power facilities, wouldn't they?

Mr. SMOTHERS. No.

Mr. SMITH. Well, they would have to be constructed at the same time you are building up your water, your retainer for your water, anyhow, wouldn't they?

Mr. SMOTHERS. No; we can design our structure so that the flood-control features can be added at any time.

Mr. SMITH. In other words, it wouldn't make any difference in regard to your cost? It wouldn't bring about any added cost to you if, for some reason or another, the Army engineers didn't receive appropriations to build these flood-control features? If they were 10 years behind, you could still build your power dam without any extra cost?

Mr. SMOTHERS. That is true.

Mr. SMITH. Would the same thing be applicable to the navigation features?

Mr. SMOTHERS. There would have to be some initial investment to provide for future locks.

Mr. SMITH. Of course, we will hear from the engineers, but do they believe they can assure you of being able to finance that part of it at the same time you are able to finance your power construction?

Mr. SMOTHERS. The Corps of Engineers?

Mr. SMITH. Yes.

Mr. SMOTHERS. Well, I think the discussions we have had with them so far—the provisions of navigation would be so minor that it could be absorbed in the overall construction of the power facilities.

Mr. SMITH. That is all.

Mr. ANGELL. Mr. Chairman, might I ask an additional question?

Mr. MACK. Yes, Mr. Angell.

Mr. ANGELL. Are there any locks required in the dam for navigation?

Mr. SMOTHERS. That is the only provision for locks at the present time.

Mr. ANGELL. There is no river transportation of any consequence, is there, in the Columbia at that point?

Mr. SMOTHERS. None at all.

Mr. ANGELL. Of course, no lock is provided in the Grand Coulee Dam above that.

Mr. SMOTHERS. No.

Mr. ANGELL. What about the Rock Island project?

Mr. SMOTHERS. None in Rock Island.

Mr. ANGELL. Are there power projects or power-project developments owned by other public-utility districts in the State of Washington?

Mr. SMOTHERS. There's one presently under construction, the Box Canyon project in Pend Oreille County, and Cowlitz County owns some generations; Chelan County has leased the Puget Sound Power & Light Co.'s structure at Rock Island and built an addition to it to create more power. They're operating at Chelan County.

Mr. ANGELL. There was a proposition at one time, was there not, for a number of the utility districts to combine and buy some large projects, power generation and distribution, in the State?

Mr. SMOTHERS. Generation and distribution; yes.

Mr. ANGELL. Did that go through?

Mr. SMOTHERS. No.

Mr. ANGELL. There was litigation over it?

Mr. SMOTHERS. We're not directly interested in that. It's in the northwestern part of the State and involves the Puget Sound Power & Light Co.

Mr. ANGELL. Have the courts passed on the validity of utility districts combining for that purpose?

Mr. SMOTHERS. I think there's no question, no litigation, to my knowledge, on it now.

Mr. ANGELL. There was at one time, was there not?

Mr. SMOTHERS. There was some.

Mr. ANGELL. But since then the State of Washington has passed legislation permitting utilities to combine?

Mr. SMOTHERS. The State Legislature of Washington in the last session enacted a law which created a State power commission and also made possible the organization of municipalities, both cities and public-utility districts, into a group for the purpose of developing generation and transmission.

Mr. ANGELL. That is all, Mr. Chairman.

Mr. MACK. Mr. Smothers, you said that the total consumption of electricity by the Grant County Public Utility District at the present time is about 40,000 kilowatts of installed capacity?

Mr. SMOTHERS. That's right.

Mr. MACK. And this site, according to the plans of the United States Army engineers, will produce 1,200,000 kilowatts of electricity?

Mr. SMOTHERS. That's true.

Mr. MACK. In other words, if this development were completed now and in operation, the Grant County Public Utility District itself could consume only about 3 percent of the total production of

the site and would be compelled to market to others 97 percent of the power that it produces there?

Mr. SMOTHERS. That is true.

Mr. MACK. Now, your plan is to build 2 dams instead of the 1 dam that is contemplated by the Army engineers?

Mr. SMOTHERS. That's one plan; yes.

Mr. MACK. You would not build both of those simultaneously at the present time?

Mr. SMOTHERS. Probably not.

Mr. MACK. What is your plan to sell these bonds? Do you plan to sell them for both projects now or to sell them for one dam and then take up later selling bonds for the second dam?

Mr. SMOTHERS. According to the schedule of power requirements, it would indicate that the wise thing to do in the construction of this project, if you build it in two stages, would be to begin the lower dam, finance that, and sell that power, and you'd have a lesser amount of power and lesser amount of financing, and that power could be readily absorbed in the market today. Then, 2 years after you begin construction of the first dam, or midway in its construction schedule, you would start the second dam. You would have that power sold and you would have it financed, and finance the second dam at that time. That would bring the generation into the power market on a schedule that would just meet our normal load increase.

Mr. MACK. What do you estimate is the cost of the construction of this first dam?

Mr. SMOTHERS. About a hundred and eighty-five million.

Mr. MACK. And the second dam about the same?

Mr. SMOTHERS. About the same.

Mr. MACK. In other words, your costs would be about the same as the United States Army engineers, except that you would put it in 2 dams rather than into 1?

Mr. SMOTHERS. That's right.

Mr. MACK. If you should go ahead and build this first dam under the authority that might be given you under the passage of this bill, would the building of one dam, if you never went ahead with the second one, prevent the engineers from going ahead and constructing the second dam?

Mr. SMOTHERS. No.

Mr. MACK. I go back to that old question—I am not expressing any approval or disapproval of this legislative project, but one of the questions that must be answered concerns what is going to happen to this dam if it doesn't prove to be the financial success that you expect.

Now, it is quite possible and quite conceivable that you cannot sell the power of this dam at that $17.50 per kilowatt-year rate that now prevails for Bonneville power. The Bonneville has an extremely low rate at the present time, and part of the reason for that, it seems to me, is the fact that the Bonneville Dam was constructed in the depression days at a very low cost compared to today's figures. The same facts largely are true of Grand Coulee Dam power.

As later dams are constructed we find that the cost of the construction is much greater. This may necessitate higher rates.

You are going to sell a tremendous portion of the power from this project, whether you build 1 or 2 dams, to other public utility districts or other utilities.

At the present time you can use only 3 percent of the power that would be generated from that site.

You are a prosperous area. You are in an area with great opportunities and likelihood of development; but even if you increased tenfold in size, you would still use only 30 percent of the power generated in your county, necessitating the sale of 70 percent.

Now, if for some reason this does not prove a financial success—I go back to the old question—would the bondholders take over the dam and would it become their property?

Mr. SMOTHERS. No; they could take over the operation of the dam and adjust the rates to provide adequate revenues, provided they could sell the power. That's all.

Mr. MACK. They would own it, though, until they got their money back.

Mr. SMOTHERS. No; they would have jurisdiction.

Mr. MACK. Until they got their money back; then it would revert to Grant County?

Mr. SMOTHERS. The control would revert; yes, sir.

Mr. MACK. After the bondholders were paid off with principal and interest?

Mr. SMOTHERS. Yes.

Mr. ANGELL. Mr. Chairman, will the gentleman yield?

Mr. MACK. Yes.

Mr. ANGELL. How could you compete with the $17.50 rate at Bonneville with the higher construction costs you would be required to comply with in the building?

Mr. SMOTHERS. Well, the present power that is produced at Bonneville is not adequate to supply the market. The new dams that are coming in, Dalles and McNary, are at a considerably higher rate, as are the new projects that are being constructed by municipalities and by the private companies in the area are at a higher cost, so that all new power, the power that is necessary—it is essential that we have more power—all new power is coming in at an increased power cost.

Priest Rapids power compares very favorably with all of those new projects as far as cost.

Mr. ANGELL. If that yearly dollar rate is maintained at $17.50, you would not be able to sell your power at a higher figure—that is, say $22.50—if that Bonneville rate is maintained would you?

Mr. SMOTHERS. There are utilities in the area that have indicated their willingness to buy at a higher rate because they—the power from the Bonneville system is just not adequate to meet all of their requirements.

Mr. WATTS. Would the gentleman yield?

Mr. ANGELL. Is that a million two hundred thousand firm power?

Mr. SMOTHERS. Let's see. Seventy-five percent of the power will be firm 92 percent of the time.

Mr. WATTS. Do you have any other source of power other than Bonneville that is selling regular current at the present time at a higher rate than Bonneville?

Mr. SMOTHERS. We don't have anyone out there selling power.

Mr. WATTS. Except Bonneville?

Mr. SMOTHERS. Yes.

Mr. WATTS. That is the sole basis for the power and the price is based on their price over the whole region?

Mr. SMOTHERS. That's right.

Mr. WATTS. Well, what, then, are they doing at these new constructions where the Bonneville rate is not sufficient to make the project pay its way?

Mr. SMOTHERS. You mean on the Federal project?

Mr. WATTS. No. You said there were some private projects out there, too.

Mr. SMOTHERS. Oh, yes.

Well, they absorb the cost. The power pool absorbs that, just as, for instance, in times of power shortage they have to run steam plants which are tremendously higher than hydroelectric power costs. That has to be absorbed by the utilities.

Mr. WATTS. In other words, the rate goes on the same as Bonneville irrespective of what it costs to produce it?

Mr. SMOTHERS. Yes.

Mr. ANGELL. Bonneville retains the power, does it not, to fix their rate?

Mr. SMOTHERS. To fix their rate; yes, under the Federal Power Commission.

Mr. ANGELL. Of course, that wouldn't apply to you in this project?

Mr. SMOTHERS. No.

The power cost of the distribution utility is a combination of the costs of their own plant and the costs of any power they may purchase from Bonneville or from others. It is a production expense.

Mr. MAGNUSON. Mr. Chairman.

Mr. MACK. Mr. Magnuson.

Mr. MAGNUSON. Isn't it true, Mr. Smothers, that there is an extreme likelihood that Bonneville's $17.50 rate will be increased; it is estimated it probably will be raised to about $22?

Mr. SMOTHERS. That's true. In fact, it's almost a certainty that it will be increased to about $22.50, I think that is the figure.

Mr. ANGELL. Dr. Raver has said that also, has he not?

Mr. SMOTHERS. Yes.

Mr. MACK. Do you have a question, Mr. Holmes?

Mr. HOLMES. Just to add that in the amortization program of these higher-cost dams they are making studies on that problem right now in Bonneville.

Mr. MACK. Mr. Smothers, what does your latest statement show to be the gross assets of the Grant County Public Utility District?

Mr. SMOTHERS. About $7,640,000.

Mr. MACK. And what are the debts against that?

Mr. SMOTHERS. About $6 million.

Mr. ANGELL. What do the assets consist of?

Mr. SMOTHERS. Cash, physical plant, office furniture and fixtures.

Mr. ANGELL. Is that the distribution plant?

Mr. SMOTHERS. Distribution.

Mr. ANGELL. Not the generating?

Mr. SMOTHERS. It is not a generating plant.

Mr. MACK. Your net worth, then, is about a million dollars?

Mr. SMOTHERS. A little over.

Mr. ANGELL. Have you levied any taxes thus far?

Mr. SMOTHERS. Not since the district went into operation.

In that area it is used strictly for organizational purposes. After a public utility gets into operation, they——

Mr. ANGELL. Do you have existing authority to market the power in any place in the State?

Mr. SMOTHERS. Yes.

Mr. ANGELL. Outside of the State, do you have it also?

Mr. SMOTHERS. Anywhere within or without the State; anywhere within or without the area served by the district.

Mr. MACK. You have no facilities at the present time to transport any power outside of the boundaries of your own county?

Mr. SMOTHERS. No.

Mr. MACK. Do you think it is feasible for a corporation with a million dollars of assets or $1 million of net worth to go in for 5 more million dollars?

Mr. SMOTHERS. Yes; if the development to be financed is capable of producing the revenues to support the amortization and interest on the bonds.

Mr. MACK. What is the age of the Grant County Public Utility District?

Mr. SMOTHERS. It began operation in 1942.

Mr. MACK. And what were your profits last year?

Mr. SMOTHERS. Last year there were no profits; our net income was about $240,000.

Mr. MACK. Net income. Does that mean after depreciation and after interest?

Mr. SMOTHERS. After depreciation, after interest, before amortization of outstanding bonds.

Mr. ANGELL. And after cost of operation?

Mr. SMOTHERS. Yes.

Mr. ANGELL. Is the Priest Rapids project located entirely within Grant County?

Mr. SMOTHERS. It's located on the boundary of Grant County. It lies between Yakima County and Grant County. The river is the county line.

Mr. MACK. Are there other public utilities in the neighboring counties?

Mr. SMOTHERS. Yes; there's one in Chelan County, one in Douglas County, in Okanogan County, and in Benton and Franklin Counties south of us. Yakima County has a public utility district, but it's not operative.

Mr. MACK. Do they have private power in Yakima?

Mr. SMOTHERS. Yes.

Mr. MACK. Are there any proceedings under way to acquire the private holdings of the Yakima County?

Mr. SMOTHERS. No.

Mr. MACK. Yakima is the only large and populous county in this particular area, is it not?

Mr. SMOTHERS. Yes.

Mr. MACK. In other words, your county is much larger than these counties you have named, I mean the population, excepting Yakima?

Mr. SMOTHERS. Except Yakima, and possibly—well, not excepting Chelan County because we have several larger towns where Chelan has just the one.

Mr. MACK. Have any of these other counties, including Yakima, manifested any interest in becoming associated with you in this proposed development?

Mr. SMOTHERS. You mean cooperating in the construction of it?

Mr. MACK. Yes.

Mr. SMOTHERS. They've expressed an interest; yes.

Mr. MACK. Are there any other questions?

Mr. ANGELL. What county is Spokane situated in?

Mr. SMOTHERS. Spokane County.

Mr. MACK. That is private power?

Mr. ANGELL. Does Spokane County have a utility district?

Mr. SMOTHERS. No; that is served by the Washington Water Power Co.

Mr. ANGELL. Has Spokane indicated any interest in acquiring power from this project?

Mr. SMOTHERS. The Washington Water Power Co. and the PPL both have indicated they are interested in obtaining power; yes.

Mr. ANGELL. Does the Washington Water Power Co. distribute power in your area?

Mr. SMOTHERS. No; not in the county. They serve the adjoining counties.

Mr. WATTS. Based on the estimated cost of your dam, what do you think, or have you arrived at any figures as to what you would have to charge in order to carry the operating expenses, plus the amortization on the bonds?

Mr. SMOTHERS. Yes; it's estimated on a kilowatt-year basis, depending on interest rates. We have assumed two different interest rates. If our interest costs us 3¾ percent, effective, the average power cost, and plus power, it would be about 2.9 mills, or about $19.40 a kilowatt-year. If interest rates go up to 4 or 4¼ percent, our average kilowatt-hour cost would be about 3.1, or $20.60 a year.

Mr. WATTS. In either event, you would be well within the $22 you think Bonneville is going to go to?

Mr. SMOTHERS. That's right.

Mr. MACK. If Bonneville doesn't go up above $17.50, you might have some difficulty in selling this great amount of surplus power.

Mr. SMOTHERS. We know some of the industries that want to move out in the area.

Mr. MACK. Of course, we have a situation there now where there are a number of new dams that will come into production by 1960, including Chief Joseph, Alben Falls, Detroit, Lookout Point, and so forth, which by 1960 will provide three times as much power in the Pacific Northwest as we now have.

Mr. SMOTHERS. The experience in the electric industry is that even with existing customers you have a certain normal growth—that is, without adding any new customers.

It's assumed generally in the industry you will experience about a 10-percent increase per year in use of the electricity.

In the estimates of this report that I mentioned in my statement, they've used a 4-percent increase, which is very conservative, and that still indicates that we're going to have an increase in load of approximately 400,000 to 500,000 kilowatts a year just with our normal growth.

Mr. MACK. And that 400,000 to 500,000 kilowatt increase in consumption would just about absorb this assumption of 5 million kilowatt-hours of electricity that we would gain in the next 7 years?

Mr. SMOTHERS. That's right.

That's indicated in this chart. We showed the additions of McNary and Chief Joseph and the other Federal projects coming in, and we show where they level off.

This indicates the hydro facilities that are in existence or under construction, and with comparisons for the normal growth.

Mr. ANGELL. What has been the normal growth of power demand in this area over the last 10-year period?

Mr. SMOTHERS. Something like 14 percent.

Mr. ANGELL. A year?

Mr. SMOTHERS. Yes.

Mr. MACK. That growth has occurred at a time this irrigation project was being built. Now that it is nearing completion, with irrigation ditches dug, we are going to have much more rapid growth in the next few years than we have experienced in the past.

Mr. SMOTHERS. That is true.

Mr. ANGELL. It is true a number of industrial operations sought to come into the area but were unable to get power from Bonneville?

Mr. SMOTHERS. That is true.

That is also indicated on that chart. There is shown the potential industry applications that have been made for industrial power that we're just not able to supply.

Mr. ANGELL. Can the aluminum industry, under present market conditions, pay $22 per kilowatt-year and make a profit?

Mr. SMOTHERS. Well, I can't speak for the aluminum industry. I would think they could.

Mr. ANGELL. Well, some of these aluminum industries that have erected their own steam plants, their power is costing that much, is it not?

Mr. SMOTHERS. I think it's about that figure.

Mr. SMITH. Do your projected sales include further development of the aluminum industry out there?

Mr. SMOTHERS. No; not as far as our district is concerned.

We have contemplated only disposing of the power to other utilities who are engaged in the distribution of power.

Mr. MACK. Any other questions?

I thank you, Mr. Smothers, on behalf of myself and the committee for this testimony which you have given to us.

We will now hear from Mr. Keith Willey, of the Harza Engineering Co.

Mr. Willey.

STATEMENT OF KEITH WILLEY, CHIEF PLANNING ENGINEER, HARZA ENGINEERING CO., CHICAGO, ILL.

Mr. WILLEY. Mr. Chairman, gentlemen of the committee, I have a prepared statement which I would like to read.

My name is Keith Willey and I am employed by the Harza Engineering Co., of Chicago, Ill., as chief planning engineer.

This private company specializes exclusively in the engineering for hydraulic projects and on an international basis. Our basic philos-

ophy in the conception of each project is to achieve the optimum combination of justifiable benefits and maximum economy within the limits of economic feasibility. For projects within the United States this philosophy is consistent with the letter and spirit of the Federal Power Act and other applicable Federal and State statutes.

During the past 5 years our company has been actively engaged in various aspects of the engineering of both major and minor hydraulic projects in the Pacific Northwest. Major projects have included the Box Canyon project, now under construction on the Pend Oreille River, the Mossyrock and Mayfield projects on the Cowlitz River, the Sultan project on the Sultan River, and the Priest Rapids project on the Columbia River.

The engineering for these Northwest projects has involved fully one-half of my time during the past 5 years, besides a substantial contribution on the part of our technical staff. These activities have brought us a recognition of the problem of development of the water resources of the Pacific Northwest unparalleled by any other private engineering firm.

This relationship has convinced us that:

1. The Pacific Northwest as a region will not be without a power shortage within the foreseeable future of 10 to 15 years, perhaps longer, even with the most rapid development of hydroelectric resources which can be realized.

2. Economic considerations will dictate that the bulk of added generation to meet the fast-growing loads of the region will be from hydroelectric installations located principally on the Columbia River and its major tributaries.

3. It is not inconsistent to provide hydropower development together with the substantial preservation of anadromous fish runs where these interests reportedly conflict. In part, this opinion is based on technical advancements to which our company has made a substantial contribution.

4. Prevention of damages or threat of damages from floods, must, within justifiable limits, be continued as an integral part of the region's water-resources development.

5. Consideration of navigation, irrigation, recreation, and other benefits should be continued as logical aspects of the regional development.

6. The notable financial success of large multipurpose Federal projects over the past 20 years establishes a precedent to assure private financing of some similar, though undeveloped, projects.

The realization of a privately financed hydraulic development customarily involves several engineering steps. The initial phase involves a preliminary appraisal to establish, with the basic information which may be readily at hand, the general level of economic feasibility of the development under consideration. This relatively low-cost study serves as a basis for executive decision by the sponsoring utility relative to making the subsequent investments essential to continued investigations.

The next engineering step involves project planning to evolve the optimum plan for the development of the water resources of the reach of the river under investigation. This study evolves the estimated capital and annual costs, the estimated tangible benefits, and their

interrelation. It thus forms the essential bases for (1) private financing, (2) contract drawings, and (3) application for license to the Federal Power Commission.

Upon licensing and financing, the engineering of the development proceeds in order on to (1) contract drawings and specifications basic to the award of contracts for the general construction and for the furnishing of equipment such as turbines, generators, transformers, gates, cranes, and so forth; (2) detailed construction drawings by which the project is built; and (3) the engineering supervision of construction to assure that the development is constructed as intended or as modified to fit field conditions encountered after the foundations are uncovered.

In November of 1952, the public utility district of Grant County engaged the Harza Engineering Co. to make a preliminary engineering and economic appraisal of the hydraulic development of the 55-mile long reach of the Columbia River between Priest Rapids and the existing Rock Island project, which reach involves a fall in the river of about 150 feet. These studies, which were made under my general direction, are presented in the accompanying report, dated April 25, 1953.

I will leave for the committee's reference, at your pleasure, a copy of this report.

Mr. MACK. The committee accepts it.

Mr. WILLEY. The basic field data we utilized was that available as a result of previous general and specific investigations made principally by Federal agencies, including the Bonneville Power Administration, the United States Geological Survey, the Bureau of Reclamation, and the Corps of Engineers. The major portion of the data supplied by the latter agency resulted from a preliminary evaluation basic to the investigations included in their Review Report on the Columbia River and Tributaries and issued in October 1948.

It should be pointed out that a detailed project planning investigation to evolve the development of the resources of the reach of the Columbia River under consideration for optimum regional benefits has never been accomplished. We consider that, at this stage, it may be a grave engineering error to, in effect, legislate a plan of development when this essential engineering step has not yet been accomplished. It is basic to the thinking of all who now are directly concerned that optimum regional development is a guiding consideration.

The bill now under consideration and as drawn makes no attempt to require the following of a definite engineering plan.

Our appraisal included a study of the development of the gross head available at Priest Rapids by a single high dam and, alternatively, by two smaller dams of approximately equal head and cost, one at Priest Rapids and the other at Beverly. These alternative developments were studied on the basis of being constructed without flood-control provisions and also with provisions made in the initial construction for the future addition of flood-control facilities. In addition, the single-stage development was studied on the basis of incorporating flood-control facilities with the initial construction.

In all cases it was assumed that the flood-control facilities would be provided by the Federal Government at such time as Congress may direct.

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Further, provisions were uniformly included for initial fish-passing facilities and for the future addition of navigation facilities, the latter subject to congressional action.

It must be pointed out that, in this initial appraisal, not all of the development alternatives were studied. Such a comprehensive study, which must include the results of far more detailed field investigations than now available, represents the next logical step in the engineering of the development—that of project planning.

Our estimates of the total investment required, exclusive of substations and transmission, for the various alternatives studied are as follows—and I'll refer to these as single-site development, meaning 150-foot dam, or as a 2-site development, meaning two 75-foot dams, roughly, to occupy the same head:

The initial project with provisions for future raising for the single-site development—$453 million; for the 2-site development—$361 million.

Mr. ANGELL. May I interrupt to ask: Are those concrete dams or rock dams?

Mr. WILLEY. They are concrete spillways and concrete powerhouse intakes, but the remainder of the dam beyond those essential structures would be fill type, either rock or rock and earth fill or earth fill.

Mr. MACK. Pardon me. Did I understand you to say the cost of these dams would be four hundred and three hundred thousand dollars, roughly?

Mr. WILLEY. Million.

Mr. MACK. Million, rather.

Mr. WILLEY. This is the total project investment.

Mr. MACK. I see.

Mr. WILLEY. That includes interest during construction, engineering, overhead, financing charges, and all such similar costs which are chargeable to the project as part of the investment.

Let me turn to power allocation, which is the cost of the power project only, and in this case we have used the cost of the 2-site development inasmuch as it is purely for power development, of course, including other benefits than flood control, which was somewhat less than a single-site development.

We have assumed, therefore, that all additional costs involved with any other scheme of development are not properlly chargeable to power.

Now, the cost of the power allocation—the 2-site development for power only—is $358 million. That, subtracted from the initial project cost, leaves a cost to the flood-control features, under the initial construction, of $95 million for the single-site development and $3 million for the 2-site development.

The future extension for flood control, assuming that it will be added at a later date and using, however, present-day prices, for the single-site development is $54 million, and for the 2-site development is $159 million.

Therefore, the cost of flood-control features of the final structure is—for the single-site development $149 million; for the 2-site development, $162 million.

Mr. ANGELL. Would the same amount of flood control be achieved in each type of construction?

Mr. WILLEY. Yes, sir.

That, then, makes a total cost, a total investment, I should say, of the project, with flood control added, on the basis of present-day prices or, I should say, prices that could be achieved within the construction period—for the single-site development, $507 million; and for the 2-site development, $520 million, or an incremental cost of flood control for the 2-site development of $13 million—in other words, the 2-site development, ultimately with the flood control, as now conceived, costing slightly more than the single-type development.

The estimated net annual energy production of the various alternatives, expressed in millions of kilowatt-hours, is as follows:

For the 2-site development, the Priest Rapids project—you will have a production of 3,650—that's three billion six hundred and fifty million—of primary energy, and 480 secondary, for a total of four billion one hundred thirty million kilowatt-hours.

Mr. ANGELL. What kilowatts would that be?

Mr. MACK. Installed capacity, you mean?

Mr. WILLEY. This is just the energy production. The kilowatts are the peaking capability or the installed capacity, whatever you wish to call it. The main-plant capacity would be about 1,200,000 kilowatts, and that would be more or less equally divided between each plant in the 2-site development, if we would go to that scheme——

Mr. MACK. A kilowatt of installed capacity is about 8,000 kilowatt-hours, isn't it?

Mr. WILLEY. A little over that—8,760 per year.

The kilowatt capacity will produce a kilowatt every hour, assuming there is water available.

The Beverly project—primary production, 3,210; the secondary, 400 million, for a total of 3,610 million, making the total of the 2-site development of 6,860 million primary; 880 million secondary, or a total of 7,740 million.

Mr. HOLMES. Off the record.

(Discussion off the record.)

Mr. WILLEY. To digress a little, the financing has to be based on the production, which is usually based on the number of kilowatt-hours you put out, because that much you can sell.

Now, in some places you can sell what we call capacity or to meet a peak load for a very short period o ftime.

The initial installations, which we propose, based on this preliminary appraisal study, not the final project plan, is, for the 2-site development at Priest Rapids—the lower site, 560,000 kilowatts; and for Beverly, 540,000 kilowatts, which makes a total of 1,100,000.

Now, the single-site development: The initial installation is 1,219,000 kilowatts, which is identical with the proposal of the Corps of Engineers in the 308 report. The two-site development has substantially equal initial installations—and these energy figures are based on energy production with that installation.

Now, it was the Corps' plan that any plan that might be developed by any concern would provide for additional space for future generator installations. In this case, we have provided at Priest Rapids for the 2-site development 770,000, and at Beverly 742,500; and for the single-site 1,590,000.

So, in either case the total installation, both initial and ultimate, is substantially equal. Since we have the same amount of water and roughly the same amount of head, that would be expected.

Mr. ANGELL. That would utilize all the waterpower in that particular area of the river, would it not?

Mr. WILLEY. Let us say it would use all of that which was available along enough part of the time to assure that it might be sold. Now, there would at times during the flood season be more water that may not represent salable energy.

Mr. ANGELL. Would the construction of this project take away from the potential of the other projects on the river?

Mr. WILLEY. Not 1 kilowatt or kilowatt-hour.

Let me make one modification of that, although I have included it in my figures. Our plan, and also the corps' plan, of the Priest Rapids development was to encroach on the tailwater of the Rock Island project, thus reducing the head and the power production and the energy production of the Rock Island project. However, we deducted from the figures which I read, or am reading here, on energy, replacement energy.

Mr. ANGELL. Below Rock Island?

Mr. WILLEY. Yes, sir.

Mr. ANGELL. Does it involve any reclamation or irrigation?

Mr. WILLEY. There's no irrigation involved with the Priest Rapids project.

Mr. ANGELL. You're not figuring any benefits from that source?

Mr. WILLEY. No, sir. In fact, I do not know of any land that might be irrigated from the Priest Rapids project directly, or of any plan.

Mr. ANGELL. The terrain is precipitous in that area?

Mr. WILLEY. Quite precipitous; also, the land that I know of in that area that is acceptable to irrigation economically, where it is fertile enough to be reasonably productive, is at relatively high elevation and part of the Columbia Basin plain, as far as I know.

Mr. ANGELL. Will it interfere in any way with the salmon industry?

Mr. WILLEY. We expect the interference would be very minor, particularly with the 2-site development. The 2-site development would be more advantageous to the fish industry, since the problem of passing fish both up and down a 75-foot dam is far less critical and is within the realm of practice, whereas the 150-foot dam, I would say, was not. It is within the realm of technical feasibility, although I do not at the present time know of any project——

Mr. ANGELL. There are fisheries within the Rock Island project?

Mr. WILLEY. Yes, sir. As I recall, the fish run last year at Rock Island was 150,000 during the entire year, of which about 50 percent were blueback salmon.

Mr. ANGELL. How about Chief Joseph?

Mr. WILLEY. To the best of my knowledge, there is none whatever at Chief Joseph, or at Grand Coulee. The spawning grounds above Grand Coulee and Chief Joseph are insignificant.

Mr. MACK. Have you completed your statement?

Mr. WILLEY. No; I have some more, sir.

I'll go on with the single-site development of Priest Rapids—6,730,000,000 kilowatt-hours primary; secondary, 1,660,000,000, for a total of 8,390,000,000.

That is the completion of the figures.

It can be seen that the two-site development will produce only slightly less total energy than the single-site development, but will

produce slightly more primary energy. It is therefore reasonable to conclude that, insofar as power production is concerned, this is no great choice between either method of development.

This annual energy production referred to estimated annual costs, based principally on the total investments, indicates that the unit production cost of electrical energy will be slightly less than 3 mills per kilowatt-hour. The unit energy cost for two-site development will be about one-tenth mill less than for the single-site development.

These annual costs are based on revenue bonds maturing over a 50-year period with an effective interest rate of 3¾ percent. Any reasonable change in the interest rate finally achieved can be accompanied by a term change such that the annual costs for debt service would not be materially affected and therewith the unit cost of generation.

These basic annual costs include a liberal allowance for payments for upstream regulation as provided under the Federal Power Act. Therefore, private construction of the Priest Rapids development will have no adverse effects on the economies of upstream storage projects.

In addition, the two-site method of development has the following advantages over the single-site development:

1. Initial power production 2 to 3 years earlier.
2. Less hazards to the passing of anadromous fish.
3. Less flood hazard to the Hanford Works of the Atomic Energy Commission in the event of sudden rupture by enemy action.
4. Far less cultural adjustments in the reservoir areas.

I might digress there. We have quite a substantial stretch of the Milwaukee main line railroad, some 16 or 17 miles, which would require relocation with a higher dam or with flood-control provisions at the lower dam, plus quite a few other highway and railroad adjustments. There are practically none in the two-site development.

In summary, it is our opinion that the development of the water resources of the Columbia River between Priest Rapids and the Rock Island project is both technically and economically feasible, either with a two-site or a single-site method, and represents a sound business venture for private financing. Further, it is our opinion that either method or any other possible methods which may be developed in the project planning phase of the engineering investigations can be readily fitted into any justifiable overall plan for the development of the regional resources.

Mr. MACK. Mr. Willey, what is your position with the Harza Engineering Co.?

Mr. WILLEY. Chief planning engineer.

Mr. MACK. What is your engineering-educational background?

Mr. WILLEY. Bachelor of science degree from the University of Kansas, a master's degree from the University of Iowa, with a major in hydraulic engineering and a minor in geology, and a professional degree of civil engineer from the University of Kansas.

Mr. MACK. You have been engaged in your profession for how long?

Mr. WILLEY. I have been engaged in engineering and academic training since 1929, and specifically in the hydraulic field since 1936.

Mr. MACK. And this company majors in hydroelectric projects?

Mr. WILLEY. Not hydroelectric projects, but hydraulic, flood control, irrigation, and so on.

Mr. MACK. How old a company is this?

Mr. WILLEY. Mr. Harza organized the company about 1920, although he has been active in the engineering of hydraulic structures since about 1905.

Mr. MACK. What is the largest project that the Harza Co. has been in charge of or carried out?

Mr. WILLEY. I assume you refer to the one in which we have done all of the engineering work?

Mr. MACK. Well, major engineer work; yes.

Mr. WILLEY. That would be probably the Santee-Cooper project in South Carolina.

We have other projects of similar magnitude.

Mr. MACK. How large a project was that?

Mr. WILLEY. I have forgotten the actual cost figures—something on the order of a $70 million project.

Mr. MACK. What was the project—electric or flood control?

Mr. WILLEY. Hydroelectric, navigation, and flood control—control of the Santee and Cooper Rivers in South Carolina.

Mr. MACK. How much electricity would that project produce?

Mr. WILLEY. I wasn't with the company at that time. As I recall, the installed capacity is on the order of 70,000 kilowatts.

Mr. MACK. Is that the largest hydroelectric project with which the company has been connected?

Mr. WILLEY. No. One of the smaller ones, I would say. The Cowlitz project, which we have been working on for several years, is 460,000 kilowatts.

Mr. MACK. Is that a Tacoma power project?

Mr. WILLEY. Tacoma.

We have done most of the preliminary work so far, and so far with the Corps of Engineers, I believe, on the St. Lawrence seaway development, which is very comparable to this project.

We have a project under construction in the Philippines at the present time of 75,000 kilowatts and one of equal size in El Salvador.

I have been working on one in the Kingdom of Iraq myself which will be in the half-million-kilowatt class.

Mr. MACK. What is the largest project the company has completed?

Mr. WILLEY. The largest, which is now complete, is probably the Santee-Cooper project, which we have done all the engineering on.

Mr. MACK. Is that the 70,000 kilowatts?

Mr. WILLEY. I think it is on the order of 70,000 kilowatts.

Mr. MACK. This project on the Cowlitz is still in abeyance through court difficulties?

Mr. WILLEY. Through court difficulties; that's right.

Mr. MACK. Mr. Angell.

Mr. ANGELL. Does your company engage in promotion or purely engineering?

Mr. WILLEY. Purely engineering, preliminary planning and designs, through construction and production.

We do no construction work as a contractor whatever.

Mr. ANGELL. Is it your view, from the studies you have made thus far, that this project is feasible and that it can be financed?

Mr. WILLEY. It is mine; yes, sir.

Mr. ANGELL. And that it will pay out?

Mr. WILLEY. Yes, sir.

Mr. ANGELL. Regardless of the 17½ rate that prevails in the Bonneville area?

Mr. WILLEY. Yes, sir. That 17½ figure rate to me is only a figure of speech principally.

Mr. ANGELL. What would you estimate the cost for a kilowatt-year in this project to be?

Mr. WILLEY. Bus-bar cost would be, we figured, a little under 3 mills, depending on the project, for a kilowatt-hour. If it was possible to, say, achieve a load for the entire project, that would take all of the power, at a hundred percent load factor, it would be possibly on the order of between $20 and $22 a kilowatt-year, if we chose to express it that way, which I think engineeringwise is not a proper expression.

Mr. ANGELL. That is based on a firm power?

Mr. WILLEY. Yes, sir.

Mr. ANGELL. I think that is all.

Mr. MACK. For Grant County project, to be economically and financially feasible—is it necessary that the Bonneville Power Administration raise the rates to around $20 or $22?

Mr. WILLEY. No, sir.

Mr. MACK. Can you sell power in competition with $17.50 power if your costs are $20 to $22?

Mr. WILLEY. In the Pacific Northwest, it could be accomplished, I think, very readily because it's a matter of supply and demand, in which case the demand exists but the supply doesn't.

Mr. MACK. Of course, a $20 or $22 kilowatt-year is a low rate on the national average, but rather high within the Pacific Northwest.

Mr. WILLEY. No; I wouldn't say it would be high in the Pacific Northwest.

Mr. MACK. Compared to Bonneville?

Mr. WILLEY. Compared to Bonneville, but not to other places—say Idaho Power Co. or Washington Water Co.

Mr. ANGELL. Do you have any estimates or figures on the cost of the private utilities there in that area?

Mr. WILLEY. In connection with the financing of the Box Canyon project, on which project I am now supervising the construction, it is my understanding, although I have not had any direct work on it, that the district has just completed a power-sales contract for 10,000 kilowatts of firm power for about 4½ mills per kilowatt-hour.

Mr. ANGELL. How much would that be compared to a 17½ yearly rate?

Mr. WILLEY. That would be somewhat over twice.

Now, that same investigation—I reviewed the average sales price of the Washington Water Power Co. and, if my memory serves me correctly, their average sales price is 6 mills per kilowatt-hour, or on the order of $50 per kilowatt-year, if you wish it to be expressed in that way.

Mr. ANGELL. How about Portland General and Pacific Power & Light?

Mr. WILLEY. I made no study of the utilities around the Portland area, or any of the Puget Sound utilities.

Mr. ANGELL. How about Tacoma Light & Power?

Mr. WILLEY. Tacoma Light & Power sells at a cheaper rate even than, I believe, the Bonneville Power Administration.

Mr. MACK. Mr. Watts.

Mr. WATTS. No questions.

Mr. MACK. If you put this power into that Pacific Northwest power pool, your surplus power, it would have to be sold, I presume, at a rate that Bonneville could resell it for $17.50; would it not?

Mr. WILLEY. No; it would not. It would not be sold in any way to the Bonneville Power Administration. The Bonneville Power Administration would only act as an agency, in effect, leasing transmission lines. The contract for sales would be with the customers and the transmission may or may not be over Bonneville's lines.

If it is necessary or might prove economically advantageous for the builder of the project to build its own transmission line, say, to the Seattle-Tacoma load center, or even Portland; then, the annual cost of that must be reflected in the rate that the power and energy would be sold for—and I am sure that also would be economically feasible.

Mr. MACK. Do you mean you would enter into a contract with Seattle Power, the Seattle Public Utility, or the Tacoma Power Utility, and then you would enter into an arrangement with the Bonneville Power Administration to transport the power to that point for you at a certain fee?

Mr. WILLEY. We wouldn't as an engineering firm, but just as a builder.

Yes. In fact, to give an example of that, this contract I just mentioned for Box Canyon project, which is located—this is it right here—is being wheeled by Bonneville Power Administration to the Bellingham area, clear across the State.

Mr. ANGELL. And at what rate?

Mr. WILLEY. As I recall from what I heard, about 4½ mills.

Mr. ANGELL. Around $50 a kilowatt-year?

Mr. WILLEY. Yes.

Mr. MACK. Thank you, Mr. Willey, for your testimony to the committee.

Next we have Mr. John Whitbeck of the Blair, Rollins Co. of New York.

Mr. Whitbeck.

STATEMENT OF JOHN WHITBECK, BLAIR, ROLLINS & CO.

Mr. WHITBECK. I am with Blair, Rollins & Co. in New York. We're in the investment banking business, and we're quite familiar with the Northwest.

Our introduction to Northwest financing came in 1929 when we bought a bond issue of the city of Seattle, department of lighting. Since that time we have done about a hundred million dollars of financing for Seattle.

More recently, we participated in a $33 million issue of the Chelan County Public Utility District, which is a neighboring county there, for the development of the Rock Island project.

In addition to that financing out there, we've participated in revenue-bond financing throughout the United States—toll bridges, toll highways, waterworks, sewer works—and, in addition, a great deal of private financing, that is, financing for private companies.

We know what this project is. We've had the Harza report. We're familiar with the territory. We're familiar with the market for the power out there. We know what the costs are estimated in this instance, and we do believe that the financing is feasible on a private basis, if it is done in the 2-stage development, with stage 2 following stage 1. In other words, the financing for the entire project will not be undertaken at one time, but will be undertaken in two stages.

Mr. MACK. And what would be the bond issue for the first project?

Mr. WHITBECK. The estimated cost is $182 million, without substations or transmission lines. Now, we probably would have to provide funds for both those elements. So, we would be up in the neighborhood of $200 million, I should say.

Mr. ANGELL. At what rate of interest?

Mr. WHITBECK. I think it would be around 4 percent, if we are to try to do it today.

Mr. ANGELL. Is that based on the new rate of interest now that the Secretary of the Treasury is operating under?

Mr. WHITBECK. That's a factor; certainly is.

Mr. ANGELL. Would this be a 50-year plan?

Mr. MACK. Would this be a 50-year repayment?

Mr. WHITBECK. We might go a little longer than 50 years, for this reason: The Harza people have assumed an interest rate of 3¾ percent. They had to assume something, of course. If we go out to 4 percent, we might extend the maturity a few years longer so that the annual burden for principal and interest would be exactly the same figure as they used in the report; and we think we could swing a bond issue of more than 50 years—a little more than 50.

Certainly the project will have a useful life in excess of 50 years. There is no question about that.

Mr. ANGELL. Would there be any hesitancy among bond buyers buying bonds of that type where they have no security other than a lien on the revenues?

Mr. WHITBECK. No, sir. I say there will be no hesitancy. I am sure we can find enough bondholders or enough investors who have no hesitancy.

Mr. ANGELL. What would happen if the condition should take place, as Congressman Mack has suggested, where there would be a default and the project would be half constructed and then would stop?

Mr. WHITBECK. I was interested in that question, and I will turn to the provision in Chelan financing. This is an issue of $33 million which came out 2 years ago and very closely parallels this in a number of respects.

Mr. ANGELL. Based solely on the revenues, is it?

Mr. WHITBECK. Solely on the revenues.

Now, while they have some taxing power there, from the standpoint of selling bonds, we discard the taxing power and say this is a revenue bond—period.

Now, in the case of Chelan, in the bond resolution, they enumerate a number of events, and then it reads:

> **In each and every case, and during the continuance of such event of default the holders of 20 percent of the bonds—**

and I'll skip words here and there—

> **may elect a bondholders' committee.**

And then the next section:

At such meeting—

that is a meeting of the bondholders' committee—

the bondholders present and in person or by proxy may, by a majority of votes cast, elect one or more persons who may or may not be bondholders who shall act as trustee for all bondholders and the bondholders' committee, as such trustee, may have and exercise all the rights and powers provided for in this resolution to be exercised by the bondholders' committee; and, among such powers, the bondholders' committee may as trustee have such rights to take possession and control the business and property of the production system.

Mr. MACK. What were those words again?

Mr. WHITBECK (reading):

* * * take possession and control of the business and property of the production system.

Mr. ANGELL. And finance complete construction of the partially constructed project?

Mr. WHITBECK. Well, I wasn't thinking of failure to complete when I was reading this. What I was thinking about was a default after completion, after they had commenced operation.

Mr. ANGELL. What would happen if default takes place before completion—say it was half done?

Mr. WHITBECK. We would provide in the bond resolution—and I think it is probably provided here—that additional bonds could be issued.

Now, that has happened on a number of projects.

Mr. ANGELL. That is, there would be secondary——

Mr. WHITBECK. There would have to be some additional financing to complete it.

Take the case of the Maine Turnpike. Construction costs went up very fast. That started out as a $15-million project, and they had to sell another $5 million of bonds before they could complete it.

Mr. ANGELL. Those bonds would take secondary place?

Mr. WHITBECK. No, sir. They enjoy the same lien on the revenues that the initial bonds do.

Mr. MACK. Mr. Whitbeck, will it be necessary for the Federal Power Commission to approve of any financial arrangements that are made between the utility district and the bonding company before the Commission would grant permission to go ahead with this project?

Mr. WHITBECK. I think not.

Mr. MACK. That would be an arrangement entered into between your company and the utility district later after the permission were granted?

Mr. WHITBECK. Yes, sir.

Now, I would like to go on to one more thing on this question of default.

I'm not a lawyer; and while this says "take possession," I don't think it means that title of those properties would pass to the bondholders; but, in any event, the bondholders would not want to take title to the property, because they know they would lose tax exemption if the bondholders took possession, possession in the sense they had actual ownership.

But whatever that means, you finally—you raised the question, I believe, as to what happens eventually?

Mr. ANGELL. Yes.

Mr. WHITBECK. We have all proper charges and all arrears of interest and all bonds which, by their terms, therefore, are due and payable. Having been paid in full, the bondholders' committee shall relinquish any such possession and control to the district.

Mr. MACK. That would seem to indicate that, from your language, you are only in there temporarily, until such time as the property has been placed on the sound financial basis again?

Mr. WHITBECK. Yes, sir. We would never be the ultimate owners. We might be in possession so long as any default continued, but we would certainly never be the ultimate owners.

Mr. MACK. Mr. Watts.

Mr. WATTS. No questions.

Mr. MACK. Mr. Angell.

Mr. ANGELL. No more questions.

Mr. WHITBECK. If you would like, I will put this in the record.

Mr. MACK. We will be very glad to have it in the record, Mr. Whitbeck.

Mr. WHITBECK. I think it clarifies the point that has been raised.

(The Blair, Rollins & Co. document referred to is as follows:)

NEW ISSUE

$33,600,000

(Of an Authorized Issue of $42,600,000)

PUBLIC UTILITY DISTRICT NO. 1 OF CHELAN COUNTY, WASH.

Rock Island Hydroelectric System Electric Revenue Bonds, Series of 1951

$18,675,000 Bonds due Serially 1955 to 1991, Inclusive

$14,925,000 Bonds due July 1, 2005

Dated April 1, 1951 To mature July 1, as shown below

Principal and semiannual interest, January 1 and July 1, will be payable at the office of the county treasurer in the city of Wenatchee, Wash., and at the fiscal agency of the State of Washington in the city of New York. The first interest coupon will be for 9 months' interest and will be payable on January 1, 1952. Definitive bonds will be in coupon form in the denomination of $1,000, registerable as to principal only.

The bonds will be redeemable, on and after July 1, 1954, at the option of the district, on at least 30 days' published notice (1) in whole at any time or (2) in part from time to time, other than from proceeds of the sale of bonds, in the inverse order of maturities, beginning with the July 1, 2005, maturity; in the manner and at the prices set forth on page 13 hereof.

A sinking fund is provided for the bonds due July 1, 2005, whereby, beginning in the 12 months' period ended July 1, 1992, and in each 12 months' period thereafter, there will be applied to the purchase or redemption of such bonds amounts sufficient to retire all such bonds by maturity, as more fully set forth herein. It is also anticipated that substantial amounts of the bonds due July 1, 2005, will be retired annually by the application of excess funds in the Rock Island reserve and contingency fund after the accumulation of the required reserve of $2,275,000 has been attained. Any redemption of bonds due July 1, 2005, other than pursuant to redemption as a whole of the bonds then outstanding, shall be made at a special redemption price of 101 percent of the principal amount plus accrued interest to the date of redemption.

These bonds will constitute, in the opinion of bond counsel, valid and legally binding obligations of Public Utility District No. 1 of Chelan County, Wash., payable in the manner provided in the bond resolution from the revenues derived from the operation of additional generating facilities, as more fully described herein, to be installed by the district on premises leased from Puget Sound Power & Light Co. at its Rock Island hydroelectric generating station on the Columbia River.

In the opinion of bond counsel, the interest on these bonds is exempt from taxation by the United States of America under the Constitution of the United States as now in force, unless the State of Washington consents to such taxation.

Bonds due serially 1955 to 1991, inclusive

Amount	Coupon rate	Maturity (July 1)	Yield	Amount	Coupon rate	Maturity (July 1)	Yield
	Percent		*Percent*		*Percent*		*Percent*
$276,000	3.00	1955	2.25	$490,000	3.20	1974	3.15
$284,000	3.00	1956	2.40	$506,000	3.20	1975	3.15
$293,000	3.00	1957	2.50	$522,000	3.20	1976	3.20
$301,000	3.00	1958	2.60	$539,000	3.20	1977	3.20
$310,000	3.00	1959	2.70	$556,000	3.20	1978	3.20
$320,000	3.00	1960	2.75	$574,000	3.20	1979	3.25
$329,000	3.00	1961	2.80	$592,000	3.20	1980	3.25
$339,000	3.10	1962	2.85	$611,000	3.20	1981	3.25
$350,000	3.10	1963	2.85	$631,000	3.30	1982	3.35
$361,000	3.10	1964	2.90	$651,000	3.30	1983	3.35
$372,000	3.10	1965	2.90	$673,000	3.30	1984	3.35
$383,000	3.10	1966	2.95	$695,000	3.30	1985	3.35
$395,000	3.10	1967	2.95	$718,000	3.30	1986	3.35
$407,000	3.10	1968	3.00	$742,000	3.30	1987	3.40
$420,000	3.10	1969	3.00	$766,000	3.30	1988	3.40
$433,000	3.10	1970	3.05	$792,000	3.30	1989	3.40
$446,000	3.10	1971	3.05	$818,000	3.30	1990	3.40
$460,000	3.20	1972	3.10	$845,000	3.30	1991	3.40
$475,000	3.20	1973	3.10				

3.50-Percent Bonds Due July 1, 2005—Price 100 Percent

(Plus accrued interest in each case)

The bonds are offered when, as and if issued and subject to acceptance by the underwriters, to approval of counsel, to prior sale and to withdrawal, cancellation, or modification of the offer without notice. The underwriters reserve the right to reject any orders for the bonds. Bonds in temporary form in the denomination of $1,000, later exchangeable for definitive bonds, will be delivered at the office of Halsey, Stuart & Co. Inc., 35 Wall Street, New York, N. Y.

OFFICIAL STATEMENT

$33,600,000

(Of an Authorized Issue of $42,600,000)

PUBLIC UTILITY DISTRICT NO. 1 OF CHELAN COUNTY, WASH.

ROCK ISLAND HYDROELECTRIC SYSTEM ELECTRIC REVENUE BONDS, SERIES OF 1951

This official statement is furnished in connection with the offering of $33,600,000 principal amount of Rock Island Hydroelectric System electric revenue bonds, series of 1951, hereinafter referred to as the "bonds," of Public Utility District No. 1 of Chelan County, Wash., hereinafter referred to as the "district."

PURPOSE OF ISSUE

The proceeds of the bonds will be used by the district to finance the construction of improvements to and extensions of the Rock Island hydroelectric generating station located on the Columbia River pursuant to a 50-year lease agreement with Puget Sound Power & Light Co., hereinafter called "Puget," the owner of the station, and the installation therein of additional hydroelectric generating machinery with aggregate peaking capability of at least 165,000 kilowatts, together with necessary transmission and incidental facilities, hereinafter referred to as the "project," which will be owned and controlled by the district, as well as to pay engineering, legal, and financing costs, and to provide working capital, all as more fully set forth hereinafter.

AUTHORITY FOR ISSUANCE OF THE BONDS

The bonds are being issued by the district pursuant to and under the authority of chapter 1 of the Laws of Washington, 1931, as amended and supplemented,

hereinafter referred to and known generally as the "enabling act," and Resolution No. 292 of the district, hereinafter referred to as the "bond resolution." Public-utility districts created under the enabling act are duly established political subdivisions and municipal corporations of Washington and are authorized to acquire by construction or purchase, and to operate electric or water public-utility properties within and without the limits of the district for the purpose of furnishing the inhabitants thereof and any other persons or corporations, both public and private, within or without the limits of the district, with electric energy or water for all uses and to enter into contracts for such purposes. The enabling act also authorizes a public-utility district to issue revenue bonds for the purpose of financing the acquisition by construction or purchase of electric-utility properties and requires that any such district having revenue bonds outstanding shall establish, maintain, and collect rates or charges for services rendered by it which shall be fair, nondiscriminatory, and adequate to provide revenues sufficient for the payment of principal of and interest on its outstanding revenue bonds, and for the proper operation and maintenance of the property and repairs thereto. The enabling act also provides that the resolution authorizing such bonds, as well as the enabling act itself, will become a part of the contract with the holders of the bonds.

The bonds are being issued in accordance with paragraph B of section 1 of Resolution No. 73 of the district, which authorized the electric revenue bonds, series of 1948, of the district, known as the "separate system" paragraph which permits the district to incur indebtedness to finance the acquisition or construction of such generating, transmission, and distribution facilities as might thereafter be acquired by the district as a separate utility system, the revenues of which may be pledged to the payment of bonds issued to purchase, construct, or otherwise acquire such separate utility system.

Pursuant to the enabling act, a public-utility district is administered by a commission of 3 members, 1 of whom is elected each 2 years for a 6-year term. A commissioner must be a qualified voter, freeholder, and resident of the district from which he is elected. A public-utility district is required by law to employ a manager to be the chief administrative officer who will be responsible for the efficient administration of the utility properties of the district.

The commissioners of the district are as follows: President, L. J. Richardson (term expiring in 1952) has served since 1942; secretary, Kirby Billingsley (term expiring in 1954) has served since 1945; commissioner, W. K. McKenzie (term expiring in 1956) has served since 1936.

Other officers of the district are: C. H. George, manager; L. M. Shreve, managerial consultant; Harley W. Bryant, assistant manager; and R. E. Crooks, auditor. All were employed by Puget in its eastern division prior to the district's acquisition of such division in 1948. Harvey Davis, Esq., is attorney for the district and T. E. McKoin, county treasurer, is ex-officio treasurer of the district. E. C. Metcalf, a registered professional engineer, has been employed by the district since 1947 and some time ago was appointed project engineer in which position he is directly responsible to the district for the progress of the project. R. W. Beck & Associates, public utility analysts and consulting engineers of Seattle, hereinafter referred to as the "consulting engineer", have been retained as the district's consulting engineer since the Puget property was acquired in 1948, and will receive a similar appointment under the bond resolution.

THE DISTRICT

The district, created by vote at the 1936 general election and coextensive with the boundaries of Chelan County, acquired in July 1948 the electric subtransmission and distribution system comprising most of Puget's eastern division. Originally the system served substantially all of the populated areas of Chelan County, except about 3,500 persons in the area in and about the communities of Lakeside and Chelan in the northern part of the county served by the Washington Water Power Co., together with much of adjacent Douglas County and a small portion of Grant County. Effective February 1, 1950, the Douglas and Grant County properties were purchased by Public Utility District No. 1 of Douglas County and electric energy for such properties is now supplied at wholesale by the district. Properties of the district heretofore owned (all those not included in the project) are referred to hereinafter as the "distribution system."

Future operations of the distribution system and its annual maximum kilowatt demand, which, beginning on July 1, 1955, will be supplied in full by the project, have been estimated as follows by the consulting engineer, based upon familiarity with various economic factors affecting the service area:

Calendar year	Number of customers (end of year)	Kilowatt-hour sales	Maximum annual demand, kilowatts
		Thousands	
1950 (actual)	11,071	132,934	25,890
1951	12,207	142,983	29,900
1952	12,619	152,070	31,300
1953	13,015	159,158	32,700
1954	13,406	165,895	34,100
1955	13,777	173,272	35,600
1956	14,118	179,251	36,800
1957	14,466	185,317	38,100
1958	14,822	191,615	39,400
1959	15,178	198,052	40,700
1960	15,547	205,606	42,200

At present, the distribution system of the district with headquarters and load center at Wenatchee, serves a relatively compact urban and rural area with a population estimated at 36,000 persons. The district completed its second full fiscal year of operation December 31, 1950. Summarized operating data of the distribution system for such period and the latest 12 months are set forth below:

	12-month period ended—			
	July 31, 1949[1]	Dec. 31, 1949	Dec. 31, 1950[2]	Feb. 28, 1951[3]
Number of customers served (end of period)	12,241	12,485	[3] 11,071	[4] 10,911
Kilowatt-hour sales (millions)	119.0	122.6	132.9	133.8
Total operating revenues	$1,570,399	$1,607,941	$1,526,270	$1,513,110
Total operating expenses and taxes	896,876	901,652	895,409	891,798
Net operating income	673,523	706,289	630,861	621,312
Add other income (net)	469	2,128	34,459	33,851
Balance for depreciation and fixed charges	673,992	708,417	665,320	655,163
Depreciation and amortization of acquisition adjustment	150,000	150,000	150,000	166,277
Balance for fixed charges	523,992	558,417	515,320	488,886
Fixed charges (principally bond interest and debt discount)	312,875	311,966	302,382	300,309
Net income	211,117	246,451	212,938	188,577

[1] End of first 12-month period of operation.
[2] Reflects transfer to Public Utility District No. 1 of Douglas County of 1,747 customers on Feb. 1, 1950.
[3] First full 12 months following transfer of properties to Douglas County Public Utility District.
[4] Compared with 10,553 as of Feb. 28, 1950; reflects normal seasonal decline.

Industry in the district's service area is, in large part, associated with the processing, cold storage, or shipping of fruit, wheat, lumber, and meat. The Great Northern Railroad's main line, crossing the Cascade Range near Wenatchee, maintains shops in the city. The gold, silver, and copper mines of the county located on the eastern slopes of the Cascades are among the most productive in the State.

Wenatchee, the county seat, with a population of 12,965 (1950 United States census) compared with 11,620 in 1940, is the commercial, industrial, transportation, and export center for farm products from a surrounding area of approximately 13,000 square miles in Chelan, Douglas, Grant, and Okanogan Counties.

Comparative population data

County	1940	1950	Percent gain
Chelan	34,412	39,105	13.6
Douglas	8,651	10,788	24.7
Grant	14,668	24,225	65.2
Okanogan	24,546	29,029	18.3
Total	82,277	103,147	25.4

Chelan and Okanogan Counties long have been among the leaders in fruit production, particularly apples, in Washington. Douglas County produces considerable fruit and much of its area is included within the wheat-growing plateau area of central Washington.

Grant County includes about 60 percent of the vast area comprising the Columbia Basin project which, when completed by the United States Bureau of Reclamation, will be one of the most extensive irrigation developments in the United States. The Grand Coulee pumping plant as well as practically all of the major dams and canals of the basin development are completed or substantially completed, and some 87,000 acres in Grant County are expected to be brought under irrigation in 1952 and a total of 435,000 acres by 1957. The resulting large influx of population in that area will, it seems certain, tend to affect favorably the position of Wenatchee as a service and supply center because of the relatively great distances to the Spokane and Seattle metropolitan areas. A new four-lane highway bridge across the Columbia at Wenatchee recently was completed, thereby improving the connection with the basin area.

ALUMINUM CO. OF AMERICA PLANT

One of the major reasons for the construction of the project at this time is the location of a new aluminum-reduction plant of the Aluminum Co. of America, hereinafter called Alcoa, in Chelan County about 12 miles downriver from Wenatchee on benchland about 1 mile north of the project. The site was selected because of the ready availability of the large amounts of fresh water necessary to the reduction process, together with adequate railroad facilities and a nearby source of power.

The following information regarding the plans of Alcoa has been furnished to the district by Alcoa. The proposed plant will have 4 potlines designed to produce an annual aggregate of 85,000 tons of pure aluminum pig from aluminum oxide. Alcoa, in January 1951, entered into an agreement with the United States Government, acting through the Administrator of General Services, to construct additional aluminum-reduction facilities and to produce and sell, through the use of such facilities 600,000 tons of aluminum at the rate of approximately 120,000 tons annually after the completion of such facilities.

The total commitment by Alcoa under such letters-of-intent agreement with the Government has been estimated by Alcoa at more than $130 million for additional plants and facilities. Alcoa is one of the leading industrial enterprises of the United States with assets, as of December 31, 1950, of some $575 million. Alcoa facilities are distributed widely in the United States. At the present time, however, its manufacturing facilities in the Pacific Coastal States consist only of a reduction plant at Vancouver, Wash., and fabricating plants at Vancouver and Los Angeles.

Alcoa intends to add 35,000 tons of capacity to the Point Comfort, Tex., reduction plant already in operation and to build the new plant near Wenatchee to be financed with its own funds. Pursuant to Alcoa's agreement with the Government, Alcoa may tender to it any or all of such production not purchased by others and the Government has agreed to purchase the amount so tendered, provided that it may cancel its obligation after 300,000 tons of pig aluminum, equivalent to 2½ years' capacity production of the two new plants, have been produced and sold by Alcoa.

Alcoa's investment in the new plant, housing, and in materials and supplies is estimated to be approximately $58 million. Annual payroll for some 800 employees, many of whom doubtless will live in Wenatchee, may approximate $3,200,000 and annual expenditures for labor, materials, taxes, and power would approximate $11 million. Alcoa's operation in the new plant, when completed,

will be of the continuous-process type throughout the year and the flow of materials to and from the plant is estimated at 6,000 carloads annually. The expected date when the first of Alcoa's potlines will be in operation is July 1, 1952.

The ultimate firm power requirement for the Alcoa plant is to be 170,000 kilowatts. The load factor of that type of load would be between 95 and 98 percent. During the first few years of operation of the project until July 1, 1955, up to a maximum of 120,000 kilowatts of the Alcoa power requirement is to be supplied by the district as it becomes available from the project, with the balance being furnished by Bonneville Power Administration, hereinafter referred to as Bonneville. After that time, when it is expected that Bonneville will have adequate firm power available because of bringing into production new generating facilities now under construction on the Columbia River and its tributaries, Bonneville gradually will assume the total load of the Alcoa plant, all pursuant to the terms of a commitment for a 20-year power contract between Alcoa and Bonneville, effective from the date the Alcoa plant is ready to begin operation, and will carry the total load of Alcoa on and after July 1, 1957. More detailed information about the power contract between the district and Alcoa is set forth hereinafter.

ROCK ISLAND POWERPLANT

The Rock Island hydroelectric generating station, hereinafter referred to as Rock Island, was constructed for Puget across the Columbia River about 13 miles downstream from Wenatchee during the years 1930 to 1933, inclusive, and was the first power facility built on the main stem of the Columbia. Design and construction engineering were by Stone & Webster Engineering Corp., hereinafter referred to as "Stone & Webster." Rock Island was constructed pursuant to Federal Power Commission, hereinafter referred to as "FPC," license No. 943 dated January 21, 1930, for a term of 50 years. On and after the expiration date of such a license, the Government may purchase the property covered by the license on the basis outlined under lease agreement with Puget.

The dam consists of a reinforced concrete masonry structure 3,936 feet in length from bank to bank of the river, excluding extending earthworks, of which structure a length of 870 feet was designated the powerhouse section. The powerhouse section is designed for 12 hydroelectric generating units, each with rated capacity of 15,000 kilowatts. Four units were installed, the actual continuous capability of which has proved to be 20,000 kilowatts each, an aggregate of 80,000 kilowatts. The dam structure essentially is a series of piers, with lift gates installed in the spaces between the piers. The gates may be opened during high water to permit the full flow during highest flood to pass through the gates. The dam is without substantial storage capacity. Present normal operating head on the turbines ranges between 30 and 50 feet, depending upon stream flow. During the 6-month water-control period, October to March, inclusive, flow is relatively light and the head is high. During the summer runoff period, May to August, inclusive, when flow, particularly in June and July, is high, the operating head is reduced by reason of the higher level of water in the river immediately below the dam. Operating head gradually will become stabilized as additional water-control works are built upstream.

The present facilities at Rock Island also include necessary transformer facilities at the plant site. Two 110,000-volt transmission lines, each with rated capacity of 40,000 kilowatts, extend from the plant, one being 129 miles in length to Puget's Beverly Park substation near Everett. The other is 137 miles in length and connects with Puget's Renton substation south of Seattle. Original cost of Rock Island, including a portion of the Beverly Park line, plus additions, less retirements, was $15,230,495 per Puget's report to the FPC dated December 31, 1950.

The FPC and the General Services Administration have, from time to time, requested Puget, as the holder of the Rock Island license, to arrange for installation at Rock Island of an additional 120,000 kilowatts of generating capacity. Puget was required to take that action, pursuant to the terms of the license, whenever the market for power justified additional capacity. For a number of reasons beyond Puget's control, Puget has not undertaken directly to comply with such requests. Instead, Puget has entered into a lease agreement, hereinafter referred to as the lease, with the district, thus enabling the district to make the required additions to Rock Island. Because of the accessibility of Rock Island to rail and highway transportation and the fact that much construction requisite to completion of the project necessarily was put in by Puget as a part of the original construction, it is believed that the unit cost per kilowatt of the generat-

ing capacity proposed to be added to Rock Island will be among the most favorable now available in the Northwest.

THE PROJECT

The project consists substantially of raising the height of the existing Rock Island Dam and of installing an additional 150,000 kilovolt-amperes of rated capacity, capable of producing 165,000 kilowatts at the increased new head of water on the turbines. The 6 new turbines will be of the vertical, automatically adjustable blade, propeller type, each rated at 34,000 horsepower at 100 revolutions per minute and 45 foot head, and each directly connected to a generator of 27,500 kilowatts guaranteed capability of 95.65 percent power factor. The project necessarily will include, among other things, the construction of an extension to the present powerhouse to carry the new machinery, the installation of new crest gates in 36 gate openings to raise the level of the pool 13 feet above present height, the raising to full height of piers at 21 of such openings which are not now full height, extension of the concrete deck over 30 openings, extending and improving the fishways through the dam and construction of transmission facilities from Rock Island to a point near the site of the Alcoa plant about 3 miles upstream.

Bonneville proposes to build a substation (Valhalla) at that point, which will be connected to Rock Island as well as to the Bonneville system. At such time in the future as materials are readily available, the district may finance as part of the project the construction of a high voltage transmission line about 130 miles in length between the Valhalla substation and Puget and other utilities in the Puget Sound area. Unissued bonds in the principal amount of $9 million have been authorized under the bond resolution to finance the cost of construction of such transmission line and any excess costs of the work now being undertaken.

Stone & Webster has been employed by the district as its agent to design and supervise the construction of the project. Construction is expected to begin during May 1951. The first of the six generating units is scheduled to be in commercial operation by November 1, 1952, and the last unit by July 1, 1953.

Stone & Webster estimates that the direct construction costs of the project (exclusive of the transmission line) by major classification will be substantially as follows, assuming that the construction schedule established by it is maintained:

Dam and accessories	$2,160,000
Headworks and intake	781,000
Tailrace	330,000
Power station building:	
Substructure	1,685,000
Superstructure	1,215,000
Water wheels and governors	4,600,000
Generators and exciters	4,512,000
Switching and control equipment	665,000
Transfer bus	130,000
Electrical connections and supports	1,075,000
Auxiliary equipment	335,000
Miscellaneous auxiliary equipment	25,000
Preliminary operations	30,000
Power takeoff transmission facilities	57,000
Foundations and structures—substation	40,000
Electrical equipment and transformers	840,000
Switchgear and wiring—substation	63,000
Insurance	232,000
Temporary construction	1,000,000
Commissary and camp	250,000
Rental and depreciation on construction equipment	510,000
Engineering	720,000
Office at works	475,000
Inspection and expediting	115,000
Contingencies	1,844,000
Subtotal	23,689,000

Services of constructing engineers	$1,356,000
Federal and State social-security taxes	210,000
Total dam and powerhouse	25,255,000
Transmission lines to Valhalla substation	400,000
Total direct construction costs of the project	25,655,000

The total capital requirements, based upon Stone & Webster's estimate of direct construction costs, has been estimated by R. W. Beck & Associates, consulting engineer for the district, as follows:

Direct construction costs, including engineering	$25,655,000
State of Washington sales tax	690,000
Contingency for escalation	2,803,000
Replacement power during construction	810,000
Preliminary engineering	60,000
Organization, administrative, and supervision expense of the district	130,000
Interest during construction	1,443,000
Cost of financing, working capital, and lease rental [1]	2,009,000
Total cost of the project	33,600,000

[1] Includes $63,840 payable to the fiscal agent for the district. In connection with the negotiation of the several contracts and for other services rendered with respect to this financing and construction, he will receive a fee equal to 1 percent of the net proceeds of the bonds, of which 20 percent will be paid in cash and 80 percent in revenue obligations. Such obligations will be issued in the total principal amount of $255,360 and will mature semiannually over a period of 10 years beginning on July 1, 1953; they will be non-interest-bearing, and payment thereof will be subordinated to the payments into the bond fund (hereinafter defined).

POWER SUPPLY OF DISTRIBUTION SYSTEM

During 1950 the distribution system sold approximately 132,900,000 kilowatt-hours of energy of which about 90 percent was purchased, practically all from Bonneville, and about 10 percent was generated by the district in its small Dryden hydroelectric plant (a part of the distribution system). The average cost of energy purchased during 1950 was 3.08 mills per kilowatt-hour and the peak load was 25,890 kilowatts. Purchases from Bonneville were made on the basis of Bonneville's E–4 schedule and resulted in an approximate power cost of $16.35 per kilowatt-year. In summary, the E–4 rate provides for a monthly demand charge of 75 cents per kilowatt of billing demand, plus an energy charge of 2 mills per kilowatt-hour for the first 200 kilowatt-hours per kilowatt of billing demand and 1 mill per kilowatt-hour for all additional kilowatt-hours. Until July 1, 1955, the distribution system will continue to purchase power and energy from Bonneville under present arrangements.

Bonneville's C–4 rate is designed primarily for utilities owning and operating substantial generating facilities of their own which serve to reduce peak demand upon Bonneville. If the district purchased power and energy from Bonneville under the present C–4 rate, the district would pay $17.50 per year per kilowatt of billing demand, with a monthly minimum charge of one-twelfth of $17.50 per kilowatt of contract demand. At an 80-percent load factor the application of the standard C–4 rate results in a cost per kilowatt-hour of approximately 2.50 mills.

Rates for power in the Bonneville territory have changed little during the last 10 years and the standard price of $17.50 per kilowatt-year has been maintained throughout that period. Rate studies by Bonneville demonstrate that the basic rate structure will permit payout of its generating and transmission system as it will be constituted after the installation of the ultimate capacity at the Bonneville, Grand Coulee, and Hungry Horse generating plants. Thus, no immediate rate increase is anticipated. However, as Bonneville's higher-cost dams are completed in the area and the cost of building transmission lines increases the possibility of future upward adjustment in Bonneville rates appears probable. In this connection, the Advance Program of Transmission System Development, July 1950–June 1956, issued at Bonneville in January 1950, is quoted, in part, as follows:

"* * * with the advent of new dams built during periods of high costs of operation and construction, it may become necessary to increase the wholesale rate. The general contract provisions forming a part of the Administration's wholesale power contracts provide that December 20, 1944, and December 20 of each

fifth year thereafter, shall be rate-adjustment dates. Studies on this problem have shown that rates now in effect will supply sufficient revenues in the aggregate through fiscal year 1955 to provide for payout requirements. In addition, there will be a net surplus each year in the certified financial statements. It has, therefore, been decided that the present rates in contracts now in force will remain unchanged until the next rate-adjustment date, December 20, 1954.

"The Corps of Engineers' review report on the Columbia River and tributaries of October 1, 1948, contains plans for the construction of a series of multipurpose projects and the installation of hydroelectric generating capacity. The matter of power rates is discussed in the report, and it is concluded that, even considering present high construction costs, power could be provided for distribution on a systemwide (Bonneville system) basis for fixing rates at an average wholesale rate of around $21 or $22 per kilowatt-year.

"This wholesale rate would produce funds sufficient to repay within the period of time provided by the existing laws covering these projects all costs of construction and operation allocated to power plus a substantial subsidy to irrigation.

"Preliminary studies by the Administration, based upon latest available cost estimates and assumed allocations of costs, indicate that an average wholesale rate in the vicinity of $22.50 per kilowatt-year should be adequate to meet the financial requirements of a system including all presently existing and authorized projects in the United States Columbia River power system." (Parenthetical remark supplied.)

If it be assumed that a purchaser of Bonneville power and energy on the C–4 schedule has an 80-percent load factor, then the approximate cost of energy per kilowatt-hour would be about 2.85 mills at a $20 per kilowatt-year rate or about 3.21 mills at a $22.50 per kilowatt-year rate. The actual change in the basic C–4 rate, if any, will not, of course, be known until late 1954.

Meanwhile, it is significant that Puget has agreed to purchase surplus firm power from the project, if made available, at a cost of approximately $19 per kilowatt-year, computed in accordance with the terms of the lease. An identical price will be paid by the distribution system for power purchased from the project, all as more fully set forth hereinafter under lease agreement with Puget.

DISTRIBUTION SYSTEM SERVICE RATES

The district has continued in force the several rate schedules in effect at the time it acquired the distribution system from Puget in 1948. A summary of certain of the more important schedules is set forth below:

Residential service:
- 3.2 cents per kilowatt-hour for first 60 kilowatt-hours per month
- 2.0 cents per kilowatt-hour for next 240 kilowatt-hours per month
- 1.0 cent per kilowatt-hour for all over 300 kilowatt-hours per month
- Minimum, $1 per month

Controlled water heating:
- 75 cents per kilowatt-hour
- Minimum, $1 per month

Commercial lighting service:
- 3.20 cents per kilowatt-hour for first 100 kilowatt-hours per month

Large use residential service (optional "all electric" rate):
- $4.50 per first 270 kilowatt-hours or less per month
- 7 cents per kilowatt-hour for next 730 kilowatt-hours per month
- 1.0 cent per kilowatt-hour for all over 1,000 kilowatt-hours per month
- Minimum, $4.50 per month
- 3.00 cents per kilowatt-hour for next 400 kilowatt-hours per month
- 2.50 cents per kilowatt-hour for next 1,500 kilowatt-hours per month
- 2.25 cents per kilowatt-hour for next 2,500 kilowatt-hours per month
- 2.00 cents per kilowatt-hour for next 5,500 kilowatt-hours per month
- 1.75 cents per kilowatt-hour for next 10,000 kilowatt-hours per month
- 1.50 cents per kilowatt-hour for all over 20,000 kilowatt-hours per month
- Minimum bill, $1 for the first 5 kilowatts or less, of connected load, plus $1 per kilowatt for all over 5 kilowatts connected load

Wholesale rate to P. U. D. No. 1 of Douglas County (substantially similar to the standard Bonneville E–4 rate as summarized under "Cost of power supply").
General power:
3.2 cents per kilowatt-hour for first 100 kilowatt-hours per kilowatt demand
1.0 cent per kilowatt-hour for all over 100 kilowatt-hours per kilowatt demand
Demand discount ranges from 12.5 percent on 21 to 100 horsepower demand to 40 percent for 501 horsepower demand and over
Minimum bill, $1 per horsepower demand, but not less than 50 cents per horsepower connected load

In general, the domestic rate schedules of the district, in terms of cost of service to the customer, compare favorably with those used by other public-utility districts in Washington and by other public and private electric distribution agencies. During 1950 the average domestic customer of the district used 4,703 kilowatt-hours for which he paid an average price of 1.34 cents per kilowatt-hour. The weighted average use for the 18 public-utility districts in Washington operating substantial distribution properties was 4,770 kilowatt-hours at a cost of 1.32 cents per kilowatt-hour. The estimated national average for 1950 was 1,825 kilowatt-hour at a cost of 2.88 cents per kilowatt-hour. The district does not intend to make any important alterations in its rate schedules.

DISTRICT-ALCOA POWER CONTRACT

The power contract between the district and Alcoa, hereinafter referred to as the "contract," is dated April 26, 1951, and will expire on July 1, 1957. It is the intent of the contract to make available 120,000 kilowatts of firm power to Alcoa as soon as the district is able to supply it. It is now estimated that the first potline at the plant will be completed by July 1, 1952, the second by August 1, 1952, and the third by September 1, 1952. The first unit of the project is expected to be in commercial operation by November 1, 1952, the second by January 1, 1953, the third by February 1, 1953, the fourth by April 1, 1953, the fifth by June 1, 1953, and the sixth by July 1, 1953.

The total requirement of the Alcoa plant for power is estimated at 170,000 kilowatts. Bonneville is expected to supply initially interruptible power in the quantities required until the project can supply firm power up to the contract maximum of 120,000 kilowatts and is expected to supply, during the period in which the project is supplying power, at least the 50,000 kilowatts estimated balance of Alcoa's requirements as interruptible power.

On July 1, 1955, when it is expected that Bonneville will have added substantially to its firm capacity, the district will drop 50 percent of its maximum Alcoa load, and then will cease to purchase power for its distribution system from Bonneville. After July 1, 1955, and until July 1, 1956, the district will sell to Puget or to others that part of the 60,000 kilowatts of project capability thus released by Alcoa which the project does not sell to the distribution system. On July 1, 1956, the district will drop another 25 percent of the original Alcoa load, thus releasing another 30,000 kilowatts of project capability for sale to the distribution system, to Puget or to others. On July 1, 1957, and thereafter, the district will have no responsibility for Alcoa's load and will be in a position to sell all of the project capability to the distribution system, to Puget, and to others.

Alcoa will pay the district at the rate of $20 per kilowatt-year for the firm power made available in accordance with the provisions of the contract, provided that after July 1, 1955, the total charges by the district to Alcoa during any month shall not exceed the total cost which would have been payable under the lowest Bonneville rate, other than an at-site rate, then available under new contracts for service of the type being rendered by the district, minus any charges payable by Alcoa to Bonneville for the use of the Valhalla substation.

The contract defines certain "uncontrollable forces," including strikes, curtailment of Bonneville power, floods, injunctions preventing operation of the Alcoa plant or the project, failure of Bonneville to complete the Valhalla substation, and failure, damage, or destruction of the Alcoa plant of the project, which may result in the curtailment or suspension of the operations of either party thereto. In such cases the obligation of the district to make firm power available and of Alcoa to pay for firm power will be appropriately reduced, subject, however (1) to the right of Alcoa to elect to continue to take power which, due to uncontrollable forces affecting its operations, it would otherwise be relieved from

paying for, and (2) to the obligation, until July 1, 1955, of Alcoa to make payment (subject to 1 week's delay after the expiration of 6 months from the date of initial delivery of power) to the district for at least 70 percent of any power, which except for a strike at its plant, Alcoa would have been obligated to pay for.

The contract provides that the district shall take any and all action, at its own expense, within its power to enable it to make power available at the charges provided in the contract, but if for any reason the district shall be unable, whether due to any action by the district or otherwise, to make power available thereunder at such charges and such failure shall continue unremedied for 30 days after notice from Alcoa, then Alcoa, by notice to the district, may cancel the contract, but such cancellation shall not be deemed to waive any right of Alcoa to damages.

LEASE AGREEMENT WITH PUGET

The lease, by which Puget leases and grants to the district the right to construct the project and to make such changes in Rock Island as are essential to the operation of the project, is dated April 26, 1951, and will run for a term of 50 years from May 8, 1951, the date on which the district obtained funds to finance the project, unless the Government shall acquire the expanded Rock Island plant on or after the expiration date of the FPC license, which is January 26, 1980. Puget also grants to the district the right to construct and operate a high-voltage transmission line from Rock Island to the Puget Sound area, a distance of about 130 miles, over and on the right-of-way owned by Puget and now used for its 110,000-volt Rock Island-Beverly Park transmission line. The lease is subject to the first mortgage, as supplemented and modified, under which the first-mortgage bonds, 4¼-percent series due 1972, of Puget have been issued: *Provided, however*, That no movable property or facilities owned by the district shall be subject to said mortgage. Puget agrees under the lease that it shall not permit any default under said mortgage so as to impair the rights of the district, and in the event of default the district may at its option remedy such default and be entitled to reimbursement from Puget. Under the enabling act the district also has the right, in the opinion of bond counsel, to condemn electric property, including the interest of any mortgagee therein.

The district will be entirely responsible for financing and constructing the project, while Puget will have charge of operating Rock Island and the additional generating facilities of the project for itself and as agent for the district, in accordance with the terms of an operating agreement dated April 26, 1951. The production from the present four units of Rock Island will continue to be taken entirely by Puget and the production from the project will be taken entirely by the district, which will use it (1) to meet the terms of its contract wih Alcoa, (2) to supply the requirements of the district's distribution system serving the Chelan County area, and (3) to supply power to Puget or to sell it elsewhere if it is to the advantage of the district.

During the period beginning January 1, 1952, and ending June 30, 1955, the district will pay to Puget for the rights granted by the lease a rental consisting of (1) monthly payments at the annual rate of $82,500 and (2) amounts equal to 50 percent of all revenues, less transmission costs and taxes lawfully imposed on such revenues, received by the district from sales of dump energy generated by the project: *Provided*, That such rentals shall not exceed $480,000 annually. From October 1, 1952, to June 30, 1955, the district will obtain the firm power requirements for its distribution system from Bonneville, will sell to Alcoa the firm power to which it is committed in its contract, and will make available to Puget as dump energy all of the output of the project not sold to Alcoa. To the extent Puget can beneficially use such dump energy in its system, Puget will take and pay for such dump energy at the rate of 2 mills per kilowatt-hour delivered at Rock Island or 3 mills per kilowatt-hour delivered to Puget in the Puget Sound area; to the extent Puget cannot beneficially use such dump energy, the district may sell it to others. On and after July 1, 1955, to the expiration date of the lease, after the district has complied with the provisions of its contract with Alcoa and has provided for the firm power requirements of its distribution system, firm power made available from the project will be taken by Puget if the district desires to sell it to Puget. Puget has agreed to purchase such firm power under a service-at-cost rate which will, together with the revenues from the sale of power to the distribution system, maintain a coverage of 1.35 times debt service on the bonds, as shown in the estimate of pro forma earnings hereinafter set

forth. Beginning July 1, 1955, and continuing throughout the term of the lease, the district shall pay monthly to Puget, as additional rental for the rights granted by the lease, $40,000, less an amount in dollars equal to 33⅓ cents multiplied by the kilowatts of firm power made available to Puget and to Alcoa.

Puget is one of the major integrated electric public utilities operating in Washington. Reflecting the recent sale of its Seattle "competitive area" properties, Puget serves approximately 158,000 customers located principally in the Puget Sound area with the major service centers being Bremerton, Bellingham, Olympia, and Renton. Puget owns electric-generating facilities with a net capability of 280,000 kilowatts, including 80,000 kilowatts in steam capability, and some 5,000 pole-miles of 6,600 volt and greater capacity transmission and distribution lines. Puget has, for many years, lacked sufficient hydroelectric generating capacity by reason of which shortage it has been forced to operate its Shuffleton steam station and purchase from Bonneville such power and energy as was available.

While the cost, including 1.35 times debt service for the bonds, of firm power from the project will be approximately 16 percent greater than the present cost of similar service from Bonneville (which Bonneville cannot now provide because of insufficient capacity), the approximate cost of $19 per kilowatt-year of firm power presumably will be approximately 16 percent less than the charge Bonneville is expected to make for its service on and after the time of the expected Bonneville price adjustment in December 1954. Such charge is expected to be approximately $22.50 per kilowatt-year for this type of service.

There is some likelihood that the public-utility districts in the area served by Puget, perhaps including the Chelan district, may jointly acquire by negotiated purchase all the assets of Puget, thereupon liquidating Puget. In such case some new contractual arrangements for continuing the operation of Puget's powerplants as a pool might be entered into, but such action would be voluntary on the part of the district and in entering into any such contract the district would be bound to adhere to the covenants contained in the bond resolution. There is also the remote possibility that such districts, instead of jointly acquiring Puget's properties as a whole, might severally condemn portions of Puget's distribution system and thus deprive Puget of all or part of its power load. In such an event it is the opinion of the attorney for the district that severance damages would be allowed in sufficient amounts to enable Puget to indemnify fully and protect the district with respect to its interest under the lease. Of further importance, however, is the fact that the estimated cost of firm power from the project will be approximately $19 per kilowatt-year, which cost should enable the district to sell firm power on a competitive basis with Bonneville in view of the anticipated increase in the Bonneville rate to $22.50 per kilowatt-year after January 1, 1955.

FEDERAL POWER COMMISSION LICENSE

On May 2, 1951, the FPC made effective an order directing the district to commence and complete the district's portion of the project and directing the district and Puget to apply for an amendment of the license for the project requesting that the district "be made licensee for the project." Upon the granting of this application the district will be a joint licensee with Puget of the license (FPC License No. 943). The present termination date of the license is January 20, 1980, and the Federal Government, pursuant to a recapture clause contained in the license, may acquire the entire expanded project at the net investment therein, not to exceed the fair value thereof, less depreciation, plus reasonable compensation for damages, if any, which the license holder may suffer as a result of such recapture by the Government. In such event the lease will expire and the district will be entitled to receive its just and equitable share of the price paid.

The consulting engineer has estimated the amount of the original cost, less depreciation, but exclusive of any allowance for severance damages, as of the termination of the license in 1980 to be $20,415,000 and the amount of bonds which may reasonably be expected to be outstanding as of the same date, to be $16,064,000. In addition, it may reasonably be expected that on that date there would be in the reserve fund at least $2,275,000 which would be available for debt retirement and which, if so used, would reduce the amount of outstanding bonds to $13,789,000.

PRO FORMA EARNINGS OF THE PROJECT

The following statement of pro forma earnings of the project, from the beginning of commercial operation of the first unit in November 1952 through 1960, has been prepared by the consulting engineer. The statement is based upon continuation of 1950 price levels of wages and materials and, in his opinion, fairly reflects all factors affecting the operations of the project, as more fully set forth in exhibit A attached hereto.

The statement shows no surplus revenues for the project, because the bond resolution requires that all surplus earnings, initially, and until July 1, 1955, be transferred to the reserve fund. Thereafter it is assumed that firm power will be sold to the distribution system and to Puget under the service-at-cost rate, whereby any revenues from other sources in excess of those required to maintain the coverage of maximum debt service will be used to reduce the cost of firm power to those two customers. On this basis, under a service-at-cost rate, the coverage of maximum debt service will tend to remain constant.

Pro forma earnings of the project

[Based on 1950 price levels of wages and materials]

	Year ending Dec. 31—								
	1952	1953	1954	1955	1956	1957	1958	1959	1960
Operating revenues:									
From sales to:									
Alcoa	$91,600	$1,980,600	$2,330,200	$1,734,400	$900,000	$300,000			
Puget				637,700	1,560,800	2,096,600	$2,348,200	$2,324,000	$2,281,600
District				331,700	700,900	716,700	741,100	761,900	788,000
Sales of dump energy		150,700	287,500	172,400					
Total operating revenues	91,600	2,131,300	2,617,700	2,876,200	3,161,700	3,113,300	3,089,300	3,085,900	3,069,600
Operating expenses and taxes:									
Lease payment [1]	2,300	115,500	178,300	98,800					
Operation and maintenance	6,700	185,900	233,500	234,800	235,100	234,100	233,100	233,200	233,200
District direct	1,300	35,800	45,200	45,200	45,200	45,200	45,200	45,200	45,200
Cost of upstream benefits [2]				52,500	105,000	105,000	105,000	165,000	165,000
Purchased power				21,100	92,500	91,100	89,700	29,300	25,300
Transmission [3]	500	52,900	98,500	380,300	642,900	642,900	642,900	642,900	642,900
Total operating expenses	10,800	390,100	555,500	832,700	1,120,700	1,118,300	1,115,900	1,115,600	1,111,600
Taxes	7,300	158,500	186,400	170,600	132,000	86,000	64,400	66,700	69,200
Total operating expenses and taxes	18,100	548,600	741,900	1,003,300	1,252,700	1,204,300	1,180,300	1,182,300	1,180,800
Net operating revenues (before depreciation)	73,500	1,582,700	1,875,800	1,872,900	1,909,000	1,909,000	1,909,000	1,903,600	1,888,800
Other revenue deductions:									
Debt service [4]	30,500	870,300	1,247,500	1,395,000	1,395,000	1,395,000	1,395,000	[5] 1,391,000	[5] 1,380,000
Payments, other obligations [6]		26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000
Reserve requirements	43,000	686,400	602,300	451,900	488,000	488,000	488,000	[5] 486,600	[5] 482,800
Surplus revenues [7]									
Maximum debt service (maximum principal and interest thereafter payable on the bonds) times earned	([8])	([8])	1.34	1.34	1.37	1.37	1.37	1.37	1.37

[1] Based on ½ of net revenues from sales of dump energy.
[2] Alcoa agrees to pay upstream benefit costs until 1955.
[3] Transmission expenses subsequent to July 1, 1955, have been estimated in an amount which includes debt service and reserve requirements on $9,000,000 additional bonds.
[4] Approximate average debt service on $33,600,000 bonds.
[5] Reflects retirement of bonds due July 1, 2005, through operation of the reserve fund as shown on pp. 9 and 10 of exhibit A.
[6] Payable to the district's fiscal agent.
[7] There will be no surplus revenues, because the bond resolution requires that all surplus earnings, initially, and until July 1, 1955, be transferred to the reserve fund. Thereafter it is assumed that firm power will be sold to the distribution system and to Puget under the service-at-cost rate, whereby any revenues from other sources in excess of those required to maintain the coverage of maximum debt service will be used to reduce the cost of firm power to those two customers.
[8] Interest during construction is capitalized; first maturity of the bonds is July 1, 1955.

DESCRIPTION OF BONDS

When used in this section the term "bonds" will mean the present issue of $33,600,000 bonds and the additional $9 million bonds authorized by the bond resolution. The bonds will be issued pursuant to the provisions of the bond resolution, which sets forth in detail the terms of the bonds and the covenants of the district with respect thereto. The following statements are brief outlines of certain provisions contained in the bond resolution (attached hereto as exhibit B) to which reference is hereby made.

General

The bonds are to be dated April 1, 1951, will be issued in coupon form in the denomination of $1,000 each, and will be registerable as to principal. The following table shows the amounts of the annual maturities, the coupon rates and the aggregate amounts of annual interest payments and total bond service requirements on the bonds now being issued:

12 months ended July 1	Coupon rate	Serial bond maturities	Sinking fund for bonds due July 1, 2005 [1] [2]	Total interest requirements	Total bond service requirements
	Percent				
1951 [3]				$279,794	$279,794
1952				1,119,174	1,119,174
1953				1,119,174	1,119,174
1954				1,119,174	1,119,174
1955	3.00	$276,000		1,119,174	1,395,174
1956	3.00	284,000		1,110,894	1,394,894
1957	3.00	293,000		1,102,374	1,395,374
1958	3.00	301,000		1,093,584	1,394,584
1959	3.00	310,000		1,084,554	1,394,554
1960	3.00	320,000		1,075,264	1,395,264
1961	3.00	329,000		1,065,654	1,394,654
1962	3.10	339,000		1,055,784	1,394,784
1963	3.10	350,000		1,045,275	1,395,275
1964	3.10	361,000		1,034,425	1,395,425
1965	3.10	372,000		1,023,234	1,395,234
1966	3.10	383,000		1,011,702	1,394,702
1967	3.10	395,000		999,829	1,394,829
1968	3.10	407,000		987,584	1,394,584
1969	3.10	420,000		974,967	1,394,967
1970	3.10	433,000		961,947	1,394,947
1971	3.10	446,000		948,524	1,394,524
1972	3.20	460,000		934,698	1,394,698
1973	3.20	475,000		919,978	1,394,978
1974	3.20	490,000		904,778	1,394,778
1975	3.20	506,000		889,098	1,395,098
1976	3.20	522,000		872,906	1,394,906
1977	3.20	539,000		856,202	1,395,202
1978	3.20	556,000		838,954	1,394,954
1979	3.20	574,000		821,162	1,395,162
1980	3.20	592,000		802,794	1,394,794
1981	3.20	611,000		783,850	1,394,850
1982	3.30	631,000		764,298	1,395,298
1983	3.30	651,000		743,475	1,394,475
1984	3.30	673,000		721,992	1,394,992
1985	3.30	695,000		699,783	1,394,783
1986	3.30	718,000		676,848	1,394,848
1987	3.30	742,000		653,154	1,395,154
1988	3.30	766,000		628,668	1,394,668
1989	3.30	792,000		603,390	1,395,390
1990	3.30	818,000		577,254	1,395,254
1991	3.30	845,000		550,260	1,395,260
1992	3.50		$872,640	522,375	1,395,015
1993	3.50		901,930	492,135	1,394,065
1994	3.50		933,240	460,880	1,394,120
1995	3.50		966,570	428,540	1,395,110
1996	3.50		999,900	395,045	1,394,945
1997	3.50		1,034,240	360,395	1,394,635
1998	3.50		1,070,600	324,555	1,395,155
1999	3.50		1,106,960	287,455	1,394,415
2000	3.50		1,145,340	249,095	1,394,435
2001	3.50		1,185,740	209,405	1,395,145
2002	3.50		1,226,140	168,315	1,394,455
2003	3.50		1,269,570	125,825	1,395,395
2004	3.50		1,313,000	81,830	1,394,830
2005	3.50		1,048,380	36,330	1,084,710
Total		18,675,000	15,074,250	40,717,797	74,467,047

[1] Including redemption premium.
[2] See pp. 9 and 10 of exhibit A for the estimated operation of the reserve fund and the retirements of bonds through such operation.
[3] 3 months, Apr. 1, 1951, to July 1, 1951, inclusive.

Redemption

The bonds will be redeemable at the option of the district (1) in whole at any time on or after July 1, 1954, and (2) in part (but only from moneys available for such purpose from sources other than the proceeds of the sale of bonds) at any time on or after July 1, 1954; in any case the redemption price to be paid with respect to each bond to be the percentage of the principal amount thereof as set forth below, plus accrued interest thereon to the date of redemption, as follows:

If redeemed—	*Redemption price (percentage of principal amount)*
On or after July 1, 1954, to and including July 1, 1961	103.00
Thereafter to and including July 1, 1966	102.50
Thereafter to and including July 1, 1971	102.00
Thereafter to and including July 1, 1976	101.50
Thereafter at	101.00

Provided, however, That the bonds maturing on July 1, 2005, shall be redeemable in part as set forth in clause (2) above at any time on or after July 1, 1954, at 101 percent of the principal amount thereof, plus accrued interest to redemption date. In the event of the redemption of part only of the bonds at any time outstanding, the bonds first to be redeemed shall be the bonds maturing on July 1, 2005, and after all of said bonds have been redeemed, then the remaining bonds shall be redeemable in the inverse order of maturities, and in the event all bonds of a maturity then subject to redemption are not to be called for redemption, the bonds of such maturity to be redeemed shall be selected by lot.

Funds of the district

The bond resolution creates the following special funds:

Rock Island hydroelectric production system revenue fund, hereinafter referred to as the revenue fund, into which shall be paid all income, revenues, receipts, and profits derived by the district through the ownership and operation by it of the project together with the proceeds received by the district from the sale, lease, or other disposition of any of the project. The district covenants that all of such moneys shall be trust funds in the hands of the district and the revenue fund shall be drawn upon only for the payment of operating expense and maintenance of the project and for the repairs, renewals, and replacements thereto, and for the payment of principal, premium, if any, and interest on the bonds, and of all other obligations against said revenue fund now or hereafter imposed by law or contract.

Rock Island hydroelectric system electric revenue bonds, series of 1951, bond fund, hereinafter referred to as the bond fund, which shall be used solely for the payment of principal, premium, if any, and interest on the bonds, and for the retirement of the bonds prior to maturity thereof. The district covenants irrevocably to set aside and pay into the bond fund out of the gross revenues of the project paid into the revenue fund the following fixed amounts:

1. Monthly, beginning in May 1951, to the credit of the interest account created in the bond fund, equal amounts so that the aggregate thereof will equal the amount of the next maturing installment of interest due on the bonds.

2. Monthly, beginning in July 1954, to the credit of the principal account created in the bond fund, equal amounts so that the aggregate thereof will equal the next maturing installment of principal due on the bonds.

3. Monthly beginning in July 1991, to the credit of the sinking fund account created in the bond fund, an amount such that if the same amount were to be credited to said account each succeeding calendar month the aggregate of the amounts so set aside and credited to the sinking fund account will on each date set forth in the table below be equal to 101 percent of the amount obtained by multiplying the total amount of bonds maturing July 1, 2005, issued from time to time pursuant to the bond resolution by the percentage set opposite each such date, as set forth below:

Date:	*Percentage*	Date:	*Percentage*
July 1, 1992	5.7889	July 1, 1999	7.3434
July 1, 1993	5.9832	July 1, 2000	7.5980
July 1, 1994	6.1910	July 1, 2001	7.8660
July 1, 1995	6.4121	July 1, 2002	8.1340
July 1, 1996	6.6332	July 1, 2003	8.4221
July 1, 1997	6.8610	July 1, 2004	8.7102
July 1, 1998	7.1022	July 1, 2005	6.9548

The district shall, annually, beginning with the 12 months ended July 1, 1992, apply substantially all moneys in the sinking fund account to the retirement of bonds by purchase or redemption at prices not exceeding the redemption price of 101 percent of the principal amount plus accrued interest to the redemption date.

Rock Island Reserve and Contingency Fund, hereinafter referred to as the reserve fund, into which, after making the payments required for the bond fund for the operation and maintenance of the project and for any obligations junior to the bonds, the district shall (1) after it begins operating the project and until July 1, 1955, pay all excess revenues after making the payments specified above and (2) beginning with the month of July 1955 pay monthly, in each fiscal year, equal amounts so that the aggregate thereof will equal 35 percent of the maximum annual debt service thereafter payable on the bonds, and amounts required to be paid into any similar special funds for the payment of additional bonds payable from the revenue fund. Moneys in the reserve fund shall be used for the purpose of making up, from time to time, any deficiency in the bond fund. Moneys in such fund may also be used, from time to time, for the following purposes: (1) to pay the cost of renewals and replacements of the project, (2) to pay the cost of improvements to and extensions of the project, and (3) to pay extraordinary operation and maintenance costs of the project; provided (a) that moneys and value of Government bonds in the reserve fund in excess of $2,275,000 shall be withdrawn at least annually for the retirement of bonds by purchase or redemption, (b) that at any time when the moneys, including the value of Government bonds, in the reserve fund shall be sufficient to pay principal, interest and redemption premium on all bonds then outstanding and leave a balance of $675,000 in the reserve fund, said moneys shall be so applied, and (c) that any expenditures when in excess of $125,000 in any year for the purposes provided in clauses (1), (2) and (3) above shall be made only when approved in writing by the consulting engineer.

Additional bonds

As long as any of the bonds are outstanding, the district will not hereafter create any other special fund for the payment of revenue bonds or other obligations, or issue any such obligations which will rank on a parity with or in priority over the payments into the bond fund except that the district reserves the right to incur additional indebtedness and issue additional revenue bonds therefor, and to create special funds for the payment thereof into which payments may be made from the revenue fund of fixed amounts sufficient to pay the principal of and interest on such additional bonds and to maintain an adequate reserve therefor, the payments into which special funds may rank equally with the payments into the bond fund provided (1) that the proceeds of such bonds may be used only for the purpose of paying or reimbursing the district for costs in connection with the construction of the facilities authorized as a part of the initial facilities of the project and (2) that there is at the time of the issuance of such additional bonds no deficiency in the bond fund.

The district may issue bonds, the payment of which is a lien on the revenue fund on a parity with the payments to be made in the bond fund for the purpose of refunding at any time within 1 year prior to maturity any of the then outstanding bonds for the payment of which insufficient funds are available.

The district may also issue revenue bonds or warrants which are a charge upon all or any portion of the revenues of the district from the operation of the project junior or inferior to the payments to be made into the bond fund and the reserve fund; provided, however, that provision for payment of the obligations issued to pay the compensation of the fiscal agent for services in connection with the acquisition of the project shall have priority over the payments to be made into the reserve fund.

Certain covenants of the district

The bond resolution contains, among others, the following covenants of the district:

1. Beginning July 1, 1955, and thereafter for as long as any of the bonds are outstanding, the district will take from the project all of the power and energy requirements of its distribution system and of other customers, and will pay into the revenue fund amounts sufficient, together with other revenues of the project, to provide for all costs of operating and maintaining the project, payment and redemption of the principal of and interest on the bonds, and all other obligations payable from the revenue fund, and to transfer to the reserve fund an amount equal to 35 percent of the maximum amount required to be paid during any full fiscal year thereafter from the revenue fund into the bond fund.

The district further covenants that, subject to the covenants contained in Resolution No. 73 for the security of the 1948 bonds and any additional bonds ranking on a parity therewith, it will pay into the bond fund from revenues of the distribution system such amounts as may be required to make up any deficiency that may exist from time to time in the bond fund for which provision has not otherwise been made.

2. The district will establish and collect charges for electric energy sold and other services rendered by the project which shall be fair, nondiscriminatory, and adequate to provide revenues sufficient to satisfy all of the requirements of the bond resolution, and will not provide service free of charge to any person, firm, or corporation, either public or private, including the distribution system.

3. The district will not voluntarily modify in any way the lease so as materially to affect adversely the security of the bonds.

4. The district will not in any manner dispose of any of the project properties except (1) when there is a simultaneous payment of cash into the bond funds sufficient to retire all of the then outstanding bonds, or (2) when the properties so disposed of no longer are material or useful to the continued operation of the project.

5. The district shall cause proper books of account to be kept for the district and the project in accordance with requirements of any governmental agency authorized to make such requirements, and in accordance with the uniform system of accounts as prescribed by the FPC.

6. The district will retain continuously a nationally recognized independent consulting engineer or engineering firm for the purpose of providing the district immediate engineering counsel in the operation of the project. The consulting engineer will, in addition to other duties, prepare not later than 120 days after the close of the fiscal year ending December 31, 1952, and thereafter at least once during each succeeding 3-year period, a report based upon a survey of the project, the management of its business, and the operation and maintenance of its properties. The consulting engineer shall pass upon the economic feasibility of all contemplated extensions, betterments, and additions, involving the expenditure of $50,000 or more, to the project, and shall embody his findings in certificate form. The district will not expend moneys for extensions, betterments, and improvements to the project which will not advantageously contribute to the conduct of the business of the project in an efficient and economical manner.

7. The district will cause the project properties to be insured in the amount and to the extent that private corporations insure similar properties. In the event of any loss or damage to the project covered by insurance, the proceeds thereof will be paid into the reserve fund. A schedule of insurance coverage shall be prepared annually by the consulting engineer.

Bondholders' committee

Events of default are specified in the bond resolution which contains provisions permitting the organization of a bondholders' committee to represent the holders of the bonds if a default should occur.

Amendments to the bond resolution

The bond resolution contains provisions authorizing the amendment thereof by action of the holders of at least 75 percent in principal amount of the bonds outstanding thereunder, but such amendments are permitted only to the extent that they do not affect the maturity dates of the bonds and the interest thereon, or effect a reduction in the redemption prices thereof.

LITIGATION

The district has condemnation proceedings pending against the Rock Island hydroelectric generating station of Puget, and similar proceedings pending against the Chelan hydroelectric generating station and certain other electric properties of the Washington Water Power Co., located principally in Chelan County, and similar proceedings pending against the Merwin hydroelectric generating station of Pacific Power & Light Co. located in Clark and Cowlitz Counties, Wash. None of said cases has been tried. Also the district has been enjoined from acquiring jointly with other public utility districts all of the properties of the Washington Water Power Co. by the Superior Court of Stevens County, and the district expects to appeal that decision.

Other than the usual small claims being litigated in conection with the operations of a public utility property, or upon which litigation is threatened, and

other than the litigation mentioned in the preceding paragraph, there is no litigation of importance either pending or threatened.

ENGINEER'S REPORT

Attached hereto as exhibit A is an engineering report on the economic factors and operations of the project. The report was prepared for the district by R. W. Beck and Associates, public utility analysts and engineers, of Seattle, Wash. R. W. Beck and Associates have been employed as the consulting engineer for an initial 5-year term pursuant to the provisions of the bond resolution.

LEGAL OPINIONS

All of the proceedings in connection with the issuance of the bonds are subject to the approval of bond counsel, Messers. Wood, King and Dawson, New York City. Copies of the opinion of bond counsel with respect to the legality of the bonds will be available at the time of delivery of any bonds, temporary or definitive.

Matters of general procedure are subject to the approval of Harvey Davis, Esq. of Wenatchee, Wash., counsel for the district, whose opinion will be rendered with respect to the legality of the proceedings in connection with the lease, the Alcoa contract, the operating agreement and the issuance of the bonds.

EXHIBITS

Attached hereto are the following exhibits:

Exhibit A—Engineering report prepared by R. W. Beck and Associates.

Exhibit B—Resolution No. 292 providing for the issuance of the bonds.

MISCELLANEOUS

All estimates and assumptions in this official statement and the exhibits hereto have been made on the best information available, and are believed to be reliable and correct, but no representations whatsoever are made that such estimates and assumptions are correct or will be realized.

The agreements of the district with the holders of the bonds, either temporary or definitive, are fully set forth in the bond resolution, and reference is hereby made to this document for a full statement of the rights and obligations of the district and the holders from time to time of the bonds. Whenever engineering opinions and estimates are herein recited, such opinions and estimates were supplied either by Stone & Webster Engineering Corp. or R. W. Beck and Associates. Matters of legal opinion are based upon opinions rendered to the district by either Messrs. Wood, King, and Dawson or Harvey Davis, Esq.

Neither this official statement nor any statement which may have been made orally or in writing is to be construed as a contract with the purchasers of any of the bonds to be presently issued.

Very truly yours,

PUBLIC UTILITY DISTRICT NO. 1 OF CHELAN COUNTY, WASH.
L. J. RICHARDSON, *Commissioner-President.*
KIRBY BILLINGSLEY, *Commissioner-Secretary.*
W. K. MCKENZIE, *Commissioner.*

MAY 8, 1951.

EXHIBIT A

SEATTLE 1, WASH., *April 26, 1951.*

REPORT ON EXPANSION OF ROCK ISLAND PLANT

To the Commissioners of Public Utility District No. 1 of Chelan County, Wash.

GENTLEMEN: Presented herewith is a summary of essential data and information concerning the proposed construction of improvements to and extensions of the Rock Island hydroelectric generating station, hereinafter called Rock Island, pursuant to a 50-year lease agreement with Puget Sound Power & Light Co., hereinafter called Puget, the owner of the station, and the installation therein of additional hydroelectric generating machinery with aggregate peaking capability of at least 165,000 kilowatts, together with necessary transmission and incidental facilities, hereinafter referred to as the project, which will be owned

and controlled by the district. The district proposes to authorize $42,600,000 of Rock Island hydroelectric system electric revenue bonds, series of 1951, of which $33,600,000 (hereinafter referred to as the bonds) are to be issued at this time for the purpose of financing the construction of improvements to and extensions of Rock Island pursuant to a 50-year lease agreement with Puget, and to provide working capital therefor. The remaining $9 million bonds authorized may be issued subsequently to construct a high-voltage transmission line from Rock Island to the Puget Sound area if satisfactory arrangements cannot be made with the Bonneville Power Administration (hereinafter referred to as Bonneville) to wheel power for the account of the district from Rock Island to the Puget Sound area over existing facilities of Bonneville. A primary purpose of constructing the additions to Rock Island at this time is to supply firm power until such time as Bonneville can supply firm power to a new aluminum reduction plant to be constructed in Chelan County in the vicinity of Rock Island by the Aluminum Company of America (hereinafter referred to as Alcoa).

THE DISTRICT

The district, which is coterminous with Chelan County, is a municipal corporation of the State of Washington created by vote at the 1936 general election under chapter 1 of the laws of 1931, as amended from time to time, of the State of Washington, pursuant to which the district operates.

At the present time the district owns an electric distribution system and one small hydroelectric generating plant (hereinafter referred to as the distribution system) which presently serves electricity at retail throughout the county except for (*a*) about 3,500 persons in the towns of Lakeside and Chelan and adjacent areas and a large mining load at the head of Lake Chelan in the northern part of the county which are served by the Washington Water Power Co., (*b*) a small REA system in the upper Wenatchee Valley, and (*c*) customers of the municipal system of the city of Cashmere which the district supplies with wholesale power. The district's distribution system also supplies power at wholesale to the Douglas County Public Utility District for its East Wenatchee system. The distribution system was acquired by the district from Puget in July 1948, and to finance the costs thereof and to provide working capital, the district at that time pursuant to its Resolution No. 73 (hereinafter referred to as distribution system bond resolution) issued $9,035,000 of its revenue bonds, designated "Public Utility District No. 1 of Chelan County, Wash., electric revenue bonds, series of 1948" (hereinafter referred to as distribution system bonds) of which $8,685,000 are now outstanding.

Inasmuch as the district supplies only about 10 percent of the present power requirements of the distribution system from its existing hydro plant (Dryden plant), it is purchasing the bulk of such requirements from Bonneville under Bonneville's E–4 wholesale power rate schedule.

Scope of report

Detailed estimates of construction costs, construction schedules, and power output data were established and supplied to us by the Stone & Webster Engineering Corp. (hereinafter referred to as "Stone & Webster") and have been used in our report as submitted.

The power output data as relates to both the existing 4 units of the company at Rock Island and the 6 new units of the district to be installed at Rock Island were calculated by Stone & Webster based upon machine efficiencies and ratings supplied by the manufacturers, regulated streamflow data supplied by the Power Resources Branch of Bonneville and headwater and tailwater data developed by the engineering department of Puget. The Power Resources Branch of Bonneville also made independent studies as to the power output of the units to be installed in Rock Island, the results of which were supplied to us and were compared by us with the Stone & Webster results, and the two results were found to be in substantial agreement.

It should be noted here that the operations of the Government's plants and storage reservoirs on the Columbia River and tributaries will effectively control and regulate the flow of the Columbia River at Rock Island. Inasmuch as Bonneville will dispatch the utilization of power from Government plants it, and it alone, can best estimate how the stream may be regulated. Accordingly, the Power Resources Branch of Bonneville is considered the most reliable source for information and data in respect to regulated streamflow on the Columbia River.

Operating cost data were developed independently by Puget, the project engineer of the district and by us; the results were compared and reconciled and the agreed results have been used by us in this report.

Load data as related to the district were developed by the district and load data as related to Puget were developed by Puget. Both studies were checked by us and found to be reasonable.

From the above basic data we have made detailed studies of the operation by the district of the project as to revenues, expenses, use, disposition, and sale of power output; the effect of the contractual arrangements involved; and generally all economic factors affecting the project as hereinafter described, especially in respect to the bonds to be issued by the district. This report reflects such analyses and, we believe, presents all essential details thereof. The report also appraises the effect upon the district's distribution system of obtaining its power supply after July 1, 1955, from the project and the effect upon the district's business of the location of the Alcoa reduction works in Chelan County.

DISTRICT'S DISTRIBUTION SYSTEM

The latest actual operating results of the district's distribution system, reflecting a full year's experience for the business in Chelan County only with sales at wholesale to the East Wenatchee properties of Douglas County Public Utility District (hereinafter referred to as the Douglas district) and with power purchases from Bonneville as above indicated, are as follows:

Public Utility District No. 1 of Chelan County distribution system, 12 months ended Mar. 31, 1951

Customers (at end of period)	10,848
Kilowatt-hour sales (thousands)	134,683
Maximum annual system load (kilowatts)	25,890
Operating revenues	$1,521,496
Operating expenses and taxes	885,200
Net operating revenue (before depreciation)	636,296
Other income	31,479
Balance for debt service, reserves, etc	667,775
Maximum debt service (accrual)	441,031
Times earned	1.51

We have projected operating results of the district's distribution system reflecting normal load growth plus the additional workers and families which will follow the establishment of the Alcoa plant in Chelan County, but without attempting to reflect the stimulus to other industries to locate in the area as a result of the establishment of the Alcoa plant. Table A, included herewith, is a summary of such a projection.

TABLE A.—*Projected operating results, districts distribution system*

	1952	1953	1954	1955	1956	1957	1958	1959	1960
Customers (at end of period)	12,619	13,015	13,406	13,777	14,118	14,466	14,822	15,178	15,547
Kilowatt-hours sales (thousands)	152,070	159,158	165,895	173,272	179,251	185,317	191,615	198,052	205,606
Maximum annual system load (kilowatts)	31,300	32,700	34,100	35,600	36,800	38,100	39,400	40,700	42,200
Operating revenues	$1,714,600	$1,784,500	$1,854,500	$1,961,200	$2,027,400	$2,092,600	$2,163,100	$2,231,700	$2,324,000
Operating expenses and taxes [1]	1,017,800	1,068,700	1,112,300	1,287,600	1,370,700	1,402,300	1,443,000	1,481,600	1,530,000
Net operating revenues	696,800	715,800	742,200	673,600	656,700	690,300	720,100	750,100	794,000
Other income	13,940	11,440	11,440	11,440	11,440	11,440	11,400	11,440	11,440
Balance for debt service, reserves, etc	710,740	727,240	753,640	685,040	668,140	701,740	731,540	761,540	805,440
Actual debt service (accrual) [2]	441,031	440,499	440,331	446,514	446,531	448,309	449,921	449,444	449,801
Maximum debt service times earned	1.61	1.65	1.71	1.53	1.50	1.57	1.63	1.69	1.79

[1] Reflects purchases of power from Bonneville under existing Bonneville E–4 rate until July 1, 1955, when such purchases will be terminated and thereafter power requirements in addition to those taken care of by the small Dryden plant, will be supplied by the project at the service-at-cost rate which is hereinafter defined.

[2] Reflects issuance of additional distribution system bonds in 1955 and 1957 for additions to take care of load growth on system.

POWER SUPPLY OF DISTRIBUTION SYSTEM

The district's present power supply for the major part of the requirements of its distribution system is by purchase from Bonneville on the E–4 rate schedule, and it is proposed that this arrangement will continue until July 1, 1955. Bonneville power is delivered to the distribution system at Wenatchee and at Dryden by means of transmission facilities of Puget, under "wheeling" arrangements between Bonneville and Puget.

The present cost to the district of Bonneville power on an overall annual basis, taken from the district's financial and operating reports for the 12 months ending March 31, 1951, is as follows:

Distribution system—12 months ending Mar. 31, 1951

Cost of purchased power, Bonneville	$393,600
Thousand kilowatt-hours purchased	129,329
Cost per kilowatt-hour, mills	3.04
Maximum annual demand on Bonneville (kilowatts)	24,080
Cost per kilowatt-year	$16.35

The cost of power per kilowatt-year as determined above, is typical of the result of purchasing under the E–4 rate schedule of Bonneville as compared to Bonneville's basic C–4 rate schedule of $17.50 per kilowatt-year, because of benefits under certain system load factors which are derived from the E–4 schedule. Applying the same percentage of prospective increase in Bonneville rates to the above result of $16.35 as is represented by an increase in the basic rate from $17.50 to $22.50, the projected cost to the district under the E–4 schedule on a kilowatt-year basis would be $21.02.

In the above projection of the operating results of the distribution system, we have estimated purchased power costs for the distribution system for the years 1952 through 1954 on the basis of Bonneville's present rate under schedule E–4. From January 1, 1955, to June 30, 1955, it was assumed that an equivalent Bonneville schedule would apply, but that the rate would be increased by the percentage increase anticipated in the basic rate, or 28.6 percent.

Subsequent to July 1, 1955, the analyses reflect the participation by the distribution system in a service-at-cost rate (hereinafter defined) for firm power from the project. The estimated resulting cost to the distribution system thereunder is as follows:

Estimated cost of power from project delivered to district distribution system (at 110 kilovolts)

	Kilowatts delivered	Cost	Unit cost, per kilowatt-year
1955 (½ year)	35,300	$331,700	$18.79
1956	36,600	700,900	19.15
1957	37,900	716,700	18.91
1958	39,200	741,100	18.91
1959	40,500	763,200	18.84
1960	42,100	793,200	18.84

PUGET SOUND POWER & LIGHT CO.

Puget is a Massachusetts corporation, with general offices at Seattle, Wash., and is engaged in the business of generating and distributing electric energy principally in the Puget Sound area of the State of Washington. Its Rock Island hydroelectric development on the Columbia River in Douglas and Chelan Counties is connected with the Puget Sound area by means of two 110,000-volt transmission lines, each with a rated capacity of 40,000 kilowatts, which traverse Chelan County and are presently being utilized to "wheel" Bonneville power to the district's load centers at Wenatchee and Dryden. Thus, Rock Island is closely identified with Chelan County and the Chelan district.

Puget's distribution system is located principally in the Puget Sound area and serves approximately 158,000 customers as of this time (after the sale of certain properties to the city of Seattle). Certain annual operating statistics of Puget for the year 1950, with adjustments to reflect the properties sold to Seattle in March 1951, are as follows:

Puget—Year 1950

	Actual as reported by Puget	Adjustment account sale to Seattle	Adjusted statistics
Customers	238,553	80,230	158,323
Kilowatt-hour sales (thousands)	2,030,421	824,508	1,205,913
Maximum annual system load (kilowatts)	491,400	[1] 218,000	273,400
Operating revenues	$25,421,790	[2] $9,728,000	$15,693,790

[1] Company estimate.
[2] Does not include miscellaneous revenues, rents, etc.

Assuming that Puget continues to serve the areas now served (after sale of the Seattle properties), a projection of Puget's maximum annual system load, beginning in 1955, is as follows:

Projected maximum annual system load of Puget—Kilowatts

1955	433,000	1958	531,000
1956	463,000	1959	567,000
1957	495,000	1960	607,000

The above projection was developed by Puget in connection with its studies of the project, and we believe it to be reasonable.

Except for minor powerplants, Puget, in considering possible sales of its properties, has strenuously resisted the breaking up of its major production facilities, of which Rock Island is one plant, and its transmission network which form a power pool (hereinafter referred to as the "Puget power pool"). Thus the Puget power pool has remained intact.

As a result of our intimate knowledge of the history and development of the movement of public-utility districts to acquire all of the Puget's facilities, we believe that in any such acquisition, the Puget power pool will be continued to be operated by such new owners substantially in its present form.

The Puget power pool as now constituted has an accepted net capability to meet system load of 280,000 kilowatts which includes 80,000 kilowatts of steam-plant capability. Under normal power supply conditions, if Puget should continue to purchase the power from Bonneville to supplement its own generation, it will be required, subsequent to 1955, when Bonneville is expected to have sufficient firm power, to purchase such power under the computed demand formula on a ratcheted basis as follows:

	System peak load—Kilowatt	Capability allowance—Kilowatt	Computed demand—Kilowatt
1955	433,000	280,000	153,000
1956	463,000	280,000	183,000
1957	495,000	280,000	215,000
1958	531,000	280,000	251,000
1959	567,000	280,000	287,000
1960	607,000	280,000	327,000

From the above estimates, it is obvious that the Puget power pool will continually be in need of substantial quantities of power over and above what can be produced in its hydro plants, which power it must purchase from Bonneville or others to serve its projected loads.

Rock Island was developed by Puget to its present stage during the years 1930 to 1933, inclusive, under Federal Power Commission (hereinafter referred to as "FPC") project license No. 943 which is dated January 21, 1930, and extends for 50 years. The original design for ultimate development of Rock Island contemplated an installation of 12 hydro turbine generator units with aggregate rated capacity of 180,000 kilowatts, including provision for 2 supplemental units for development of secondary power. The present installation has only 4 units each of 15,000 kilowatts rated capacity, with aggregate demonstrated capability of 80,000 kilowatts. Despite the present great need for additional power in

the Puget system and in the Pacific Northwest generally, Puget, for reasons and conditions beyond its control, has been unable to undertake the full and ultimate expansion of Rock Island despite the fact that the undeveloped portion of Rock Island is considered one of the best and lowest cost hydro developments remaining in the Northwest.

BASIC FACTORS

At present, and until 1955 or possibly 1956, the entire Pacific Northwest region is and will be suffering from inadequate and restricted power supply. This situation has effectively served to discourage new industries from locating in the region and the impact of this condition upon the economic development and growth of the area has been of serious concern to the district.

In addition to the normal load growth pressing upon power supply facilities in the region, the National Production Administration (a bureau of the Federal Government created because of the present national emergency) has determined that it is necessary to the national defense to locate certain basic electrochemical industries in the Pacific Northwest in close proximity to hydroelectric plants where long transmission lines would not be required, and has, for that purpose, insisted that the expansion of Rock Island be undertaken and completed by Puget or the district at the earliest possible time, or, alternatively the Federal Government would be forced to acquire the plant under emergency powers in order to proceed with such expansion. The specific industry which has been certified for location in Chelan County adjacent to Rock Island, provided Rock Island will be expanded in the shortest possible time to its ultimate economic capacity, is an aluminum-reduction plant, requiring up to 170,000 kilowatts of power, to be owned and operated by Alcoa.

Such an industry located in the vicinity of Wenatchee will be of great value to the economic balance and growth of Chelan County and the district. If Rock Island is expanded at this time and the additional output therefrom is made available to the Alcoa reduction plant during this period of regional power shortage or until July 1, 1955, when Bonneville expects to have a supply of firm power available for such a load and if thereafter surplus firm power (hereinafter defined) from the project above the district's needs is made available to Puget at reasonable cost, material economic benefits will result to both the district and Puget.

Inasmuch as Puget was not in a position to undertake the expansion of Rock Island, and because of the potential benefits which can accrue to both the district and Puget, it was found expedient and in the best interests of both the district and Puget to enter into a formal agreement whereby Puget granted to the district certain rights to develop and operate the expansion of Rock Island and whereby the district agreed to finance and construct such expansion.

The proposal to expand Rock Island at this time is influenced by the following important considerations: (*a*) A critical need of the Federal Government incident to the current defense emergency will be satisfied by completion of the project as presently scheduled, thus enabling the Alcoa reduction plant to be activated at the earliest moment with a minimum use of critical materials. (*b*) Because of such critical need the project will be established as a project essential to the national defense and will thereby receive top priorities for all materials, thereby assuring that the work can be constructed as scheduled in a minimum of elapsed time and at lowest cost. (*c*) The construction schedule established by Stone & Webster, and its estimate of the total construction cost are based upon the establishment of such priorities for the project. The construction schedule is also based on the manufacturing schedules established for major items of equipment, placed on order March 5, 1951, and contemplates that active work on the site will be started before the end of May 1951, making it possible for the first generating unit to be in commercial operation by November 1, 1952, and for all units to be in commercial operation by July 1953. (*d*) After Bonneville has sufficient firm power and has taken over the Alcoa load (which will occur in steps beginning July 1, 1955, and ending July 1, 1957) the entire output of the project will be taken first by the district for its distribution system or such other customers as it finds advantageous to serve. All remaining firm power shall be taken (or paid for) by Puget if offered to Puget by the district. Both the distribution system and Puget will pay, pro rata, for such firm power such sums as are necessary to meet all costs, including full debt service plus 35 percent of maximum debt service in any year thereafter (as set forth in the

bond resolution). (e) The average cost of such firm power including the costs of delivering it to load centers of the district's distribution system and of Puget will approximate $19 per kilowatt-year. While Bonneville's present basic rate is $17.50 per kilowatt-year, it has been indicated in the Advance Program of Transmission System Development, July 1950–June 1956, issued by Bonneville in January 1950, that this rate is expected to be adjusted upward in the future, possibly to $22.50 per kilowatt-year. It is expected that substantially such an adjustment will be made as of the next rate adjustment date, December 20, 1954.

PROPOSAL

In accordance with the terms of a 50-year lease agreement (hereinafter referred to as the lease) between Puget and the district, entered into April 26, 1951, and the terms and conditions of EPC license No. 943 by which the district will become a joint licensee with the Puget by order of the Commission, expected to be issued May 1, 1951, it is proposed that the district will finance, purchase, and install at the project 6 additional hydroelectric generating units of 25,000 kilovolt-ampere rated capacity each, totaling 150,000 kilovolt-amperes of such capacity (to have a normal peaking capability to produce power in excess of 165,00 kilowatts), raise the head on the existing dam by approximately 13 feet and make other additions and betterments to the dam, powerhouse, transformer, and transmission facilities and works as are necessary to obtain the optimum output from said additional units, and transform such output to transmission line voltages. A 230,000-volt transmission line from Rock Island to the Puget Sound area, a distance of about 130 miles, is also proposed to be constructed by the district if suitable wheeling arrangements cannot be made with Bonneville. Also, initially, two 110,000-volt transmission lines about 3½ miles in length will be constructed from Rock Island to the Valhalla substation to be constructed by Bonneville adjacent to the Alcoa reduction plant, which lines subsequently may be extended about 15 miles to load centers of the distribution system at Wenatchee and elsewhere.

The project will be operated by Puget, as agent for the district, pursuant to an operating agreement, dated April 26, 1951, between Puget and the district, hereinafter called the operating agreement, which agreement extends over the term of the lease.

To finance the installation, construction and other costs and to provide initial working capital for the project, the district proposes to authorize a total of $42 million bonds and presently to issue $33,600,000 bonds, pursuant to a resolution (hereinafter referred to as the bond resolution) whereby the income, receipts, and profits of the project are pledged to the payment of interest on and the redemption of the bonds, which will enjoy a first lien upon such earnings. The bond resolution will provide that from the available power output of the project the district shall first supply the power needs of the district before disposing of such power elsewhere.

Firm power is defined in the lease as the dependable capacity of the district's six units in the project plus the dependable capacity made available through emergency interchange agreements and firm power agreements with other systems. Dump energy is also defined in the lease as all energy generated by the district's six units in the project in excess of the energy associated with the firm power actually taken by the district, Alcoa, Puget, or some other customer. During certain seasons of the year, principally June and July, when the flow in the Columbia River is high, the output of all the units of the project and Rock Island will be reduced and to supplement or firm up the output of the district's 6 units during such periods, the district has obtained a 20-year commitment from Bonneville for the purchase of all the energy it needs (at dump energy rate which at present is 2.5 mills per kilowatt-hour and which is not expected to increase) up to the firm power capability of the district's 6 units in the project, provided however, that if the flow in the Columbia River at Celilo exceeds 800,000 second-feet (extreme flood conditions) Bonneville may, at its discretion reduce the amount of firming energy supplied. To meet this extreme condition, the lease provides for Puget to furnish or obtain steam or other surplus energy in the Puget Sound area and supply it to the district, at cost plus 10 percent, to the extent the district may request such supplemental energy to make up any deficiency which otherwise would have been supplied by Bonneville.

For such firm power as the project supplies to the distribution system, the district will pledge that its distribution system shall pay to the project the full costs thereof, which costs shall include, together with other revenues of the project, adequate provision for debt service plus an allowance of 35 percent of maximum debt service for establishing and maintaining adequate reserves—which basis of charges, whether applied to the district or to others, is hereinafter referred to as service-at-cost rate.

It is contemplated that from the beginning of the commercial operation of the first unit and until July 1, 1955, the entire firm power output of the project will be sold to Alcoa and that thereafter, until July 1, 1957, certain specified portions of the firm power output will be sold to Alcoa, all as scheduled in and pursuant to the rates, terms, and conditions of a power contract entered into between Alcoa and the district on April 26, 1951. Accordingly, until July 1, 1955, the district will continue to satisfy the power requirements of its distribution system by purchases from Bonneville, at which time the district's power contract with Bonneville will be terminated and the distribution system will begin to obtain its power requirements from the output of the project by purchase from the project on the service-at-cost rate.

After the project has supplied Alcoa with firm power as outlined in the preceding paragraph and has supplied the distribution system and any other customers of the district with all of their firm power requirements, surplus firm power is expected to be sold to Puget (or its successors or assigns) on the service-at-cost rate. The lease contains stipulations to the effect that Puget shall purchase or pay for all such surplus firm power of the project made available to it by the district, after Alcoa and the district's distribution system have been supplied, on the service-at-cost rate. The district is not obligated by the lease or in any other way to sell or make available to Puget such surplus firm power. However, to the extent that the district sells the firm power in excess of an amount presently estimated to be 45,000 kilowatts which otherwise would be available to Puget, to someone else, either through its distribution system or directly by the project, the district will be required to make a lease rental payment equivalent to $4 per kilowatt-year, as more fully set forth under lease rental hereinafter.

All energy which can be produced by the project which is not supplied as firm power, as hereinabove described, may be sold as dump energy on the best terms and rates obtainable, and the revenues to be derived therefrom, together with revenues from firm power sales to Alcoa between July 1, 1955, and July 1, 1957, will serve to reduce the cost of firm power under the service-at-cost rate.

Thus, subsequent to July 1, 1955, and throughout the life of the lease, the distribution system and Puget (or its successors or assigns) may reasonably be anticipated to take all the firm power of the project (except the portion sold to Alcoa from July 1, 1955, to July 1, 1957) and each will pay the project for such firm power such amounts as may be computed by applying the service-at-cost rate. Prior to July 1, 1955, power will be sold to Alcoa at a fixed rate of $20 per kilowatt-year, net to the district, rather than at the service-at-cost rate, and such fixed rate contemplates that a 1.35 coverage of net revenues over maximum debt service will be substantially attained.

Service from the project to Alcoa will be through the Valhalla substation to be constructed by Bonneville near the Alcoa plant. The construction of such facilities by Bonneville is scheduled so as to enable Bonneville to deliver interruptible power to Alcoa by July 1, 1952, and they should be installed by the time the project will be ready to deliver firm power to Alcoa from the first generating unit on November 1, 1952.

The construction schedule for the Alcoa plant contemplates that active work at the site (the land for which has already been acquired or is held under option pending acquisition) will start at an early date and that the Alcoa reduction plant will have its first potline in operation by July 1, 1952, using interruptible power from Bonneville until the district's units begin to come into production. The remaining potlines are scheduled to be placed in operation shortly thereafter and Alcoa will be prepared and agrees in its contract with the district to take firm power from the project as rapidly as the district brings its generating units into commercial operation.

As heretofore indicated, the project will continue to supply all of its firm power output to Alcoa until July 1, 1955, and the district will continue, until that date, to take all of the firm power requirements of its distribution system from Bonneville under the E–4 rate. Also, until July 1, 1955, Puget will purchase from the project all of the dump energy (all energy not taken as firm power by

Alcoa) of the project which Puget can absorb into its system and for which Puget will pay the district the equivalent of 2 mills per kilowatt-hour at the bus bars of the project.

Subsequent to July 1, 1955, the district will take all of the firm-power requirements of its distribution system from the project. Also it is contemplated that Puget (or successor) will, at the option of the district, be required to take (or pay for) all of the firm power remaining from the project which the district makes available to Puget (or successor) after Alcoa (until July 1, 1957) has been supplied with specified amounts of firm power and the distribution system has been supplied with all its firm-power requirements. Both the distribution system and Puget (or successor) will pay for such firm power on the service-at-cost rate, and revenues from Alcoa during this period (July 1, 1955, to July 1, 1957) will serve to reduce the amounts which the distribution system and Puget would otherwise pay under the service-at-cost rate.

There is a reasonable possibility that the public utility districts in Puget's service area will jointly acquire by negotiated purchase all the assets of Puget and thereupon liquidate that company. In such event, it is assumed that, for economic reasons, the obligation of Puget under the lease either to take or pay for all the firm power from the project made available to Puget at the service-at-cost rate, will be fully assumed by such acquiring districts. There is also a very remote possibility that such districts, instead of thus jointly acquiring and liquidating Puget, might severally condemn portions of Puget's distribution system and obtain their power supply from Bonneville or elsewhere, and thus deprive Puget of all or part of its power load. In such event, we are informed by bond counsel and the attorney for the district that the courts would allow severance damages sufficient to enable Puget fully to indemnify and protect the district as to its interest under the lease. Of even greater assurance, however, is the fact that the cost of power from the project, which in such event will be approximately $19 per kilowatt year, based on 1950 wage and materials price levels, will enable the district to succeed in selling to others on a competitive basis with Bonneville all such power that Puget otherwise would have taken, because the basic rate for Bonneville power is expected to be about $22.50 per killowatt-year after January 1, 1955, and may become even higher in succeeding 5-year periods.

Accordingly, from July 1, 1955, and thereafter throughout the 50-year life of the lease the entire firm power output of the project is reasonably assured to be sold at such rate or rates that the net operating revenues before depreciation of the project will be 1.35 times the maximum annual debt service on the bonds.

The remaining $9 million bonds, which are not to be issued at this time, may be issued for the financing of construction of a 230,000-volt transmission line from Rock Island to the Puget Sound area. However, if suitable long-term arrangements can be made with Bonneville for wheeling power to and from the Puget Sound area at a fixed rate better than the costs of owning and operating such a line, it is anticipated the additional bonds will not be issued but that such wheeling arrangements will be made instead.

DEBT SERVICE AND RESERVE REQUIREMENTS

The maximum annual debt service on the initial $33,600,000 bonds will be $1,395,425 and on the additional $9 million bonds, which may be issued to finance the construction of a 230,000-volt line from Rock Island to Beverly Park, has been estimated at $374,000.

By the terms of the lease, Puget agrees to take firm power made available to it by the district and to pay for it at the service-at-cost rate. The bond resolution requires that the district's distribution system pay the project for firm power at a cost which, taking into consideration all other revenues of the project, will equal at least the service-at-cost rate. The service-at-cost rate contemplates that an amount equal to 35 percent of maximum debt service on the bonds be set aside into a reserve fund, and the bond resolution establishes and makes other provisions in respect to such fund. The maximum annual amount thus required to be paid into the reserve fund is $488,399 for the $33,600,000 bonds and will be $131,900 for the $9 million issue, in the event such bonds are issued at the same rates of interest as the bonds.

In addition to the debt service on the bonds and payments into the reserve fund, there will be 20 semiannual payments on bonds (hereinafter referred to as certificates of indebtedness) issued to the district's fiscal agent to the extent of 80 percent of his fee (which is 1 percent of the amount of the bonds, less discount). Of this fee 20 percent is paid out of the bond proceeds and the balance in certificates of indebtedness. The annual amounts required to be paid on the certificates of indebtedness, over a period of 10 years, is estimated at $25,536 on the $33,600,000 issue and $6,900 on the $9 million issue.

Our pro forma earnings of the project set forth in table B do not directly reflect debt service or payments into the reserve fund as related to the $9 million issue. Rather, such charges are included in transmission expenses.

RESERVE FUND

The bond resolution establishes a reserve and contingencies fund (herein referred to as the reserve fund). Prior to July 1, 1955, all moneys remaining from the revenues of the project after fully providing for operating and maintaining the project and debt service and other direct charges shall be set aside into the reserve fund. After July 1, 1955, there shall be set aside annually into the reserve fund amounts equal to 35 percent of the maximum annual debt service on the bonds issued under the bond resolution. Moneys in the reserve fund may be invested from time to time in general obligations of the United States Government. Moneys in said fund from time to time in excess of $2,275,000, if not needed for the purposes for which said fund is created, shall be used for the redemption of the bonds prior to maturity. The cash in said fund may be withdrawn only for the purpose of making up from time to time deficiencies in the bond fund, established in the bond resolution to service the bonds, for redeeming such bonds as aforesaid, or for the purpose of renewing or replacing the facilities of the project, or to pay the cost of improvements to and extensions of the project, and for paying extraordinary expenses of operating and maintaining the project. Withdrawals from the reserve fund (except for the redemption of bonds) in excess of $125,000 may be made only as certified by the consulting engineer of the district. Except for renewals, replacements, and extraordinary operating and maintenance expenses and for minor additions such as meters, switches, furniture, and lesser equipment which may from time to time be required, it is not anticipated at this time that the money in the reserve fund will be drawn upon, other than not to exceed $500,000 to build transmission and transformer facilities to deliver power from the project direct to the distribution system and for engineering expenses and other preliminary expenditures in connection with the prospective 230,000-volt line.

An estimate follows of how the reserve fund may operate with respect to the bonds:

Estimated operations of reserve fund

12 months ended July 1	Transfers into reserve fund	Interest earned on balance in fund at 2 percent	Assumed withdrawals for construction and extraordinary maintenance	Withdrawals for bond retirements at 101	Balance in reserve fund
1953	$386,200		[1] $300,000		$86,200
1954	644,400	1,724	[1] 200,000		532,324
1955	509,000	10,646	125,000		926,970
1956	488,000	18,539	125,000		1,308,509
1957	488,000	26,170	125,000		1,697,679
1958	488,000	33,954	125,000		2,094,633
1959	488,000	41,893	125,000	$224,200	2,275,306
1960	485,280	45,500	125,000	406,020	2,275,067
1961	480,356	45,500	125,000	399,960	2,275,963
1962	475,505	45,500	125,000	396,930	2,275,038
1963	470,691	45,500	125,000	390,870	2,275,359
1964	465,950	45,500	125,000	385,820	2,275,989
1965	461,271	45,500	125,000	381,780	2,275,979
1966	456,640	45,500	125,000	377,740	2,275,379
1967	452,058	45,500	125,000	372,690	2,275,248
1968	447,538	45,500	125,000	367,640	2,275,646
1969	443,079	45,500	125,000	363,600	2,275,625
1970	438,669	45,500	125,000	359,560	2,275,234
1971	434,308	45,500	125,000	354,510	2,275,533
1972	430,009	45,500	125,000	350,470	2,275,571
1973	425,758	45,500	125,000	346,430	2,275,399
1974	421,556	45,500	125,000	342,390	2,275,065
1975	417,403	45,500	125,000	337,340	2,275,628
1976	413,312	45,500	125,000	334,310	2,275,130
1977	409,257	45,500	125,000	329,260	2,275,627
1978	405,264	45,500	125,000	326,230	2,275,160
1979	401,307	45,500	125,000	321,180	2,275,787
1980	397,411	45,500	125,000	318,150	2,275,548
1981	393,552	45,500	125,000	314,110	2,275,491
1982	389,743	45,500	125,000	310,070	2,275,664
1983	385,982	45,500	125,000	307,040	2,275,106
1984	382,258	45,500	125,000	301,990	2,275,874
1985	378,595	45,500	125,000	298,960	2,275,009
1986	374,969	45,500	125,000	295,930	2,275,548
1987	371,380	45,500	125,000	291,890	2,275,538
1988	367,840	45,500	125,000	288,860	2,275,018
1989	364,336	45,500	125,000	284,820	2,275,034
1990	360,882	45,500	125,000	280,780	2,275,636
1991	357,476	45,500	125,000	277,750	2,275,862
1992	354,108	45,500	125,000	274,720	2,275,750
1993	350,775	45,500	125,000	271,690	2,275,335
1994	49,365	[2] 7,500	[2] 21,000	35,865	675,000

[1] Such expenditures in excess of $125,000 from the reserve fund in any 1 year may be made only with the approval of the consulting engineer.
[2] 2 months.

At this point the balance in the reserve fund, according to the above estimates, will be sufficient to retire all outstanding bonds and leave the balance of $675,000 in the reserve fund as required by the bond resolution. A schedule of the estimated retirements of the bonds based on the above application of moneys in the reserve fund and the serial maturities is given below:

12 months ended July 1	Serial maturities	Bonds due July 1, 2005		Total retirements	Balance outstanding
		From reserve fund	From sinking fund		
1955	$276,000			$276,000	$33,324,000
1956	284,000			284,000	33,040,000
1957	293,000			293,000	32,747,000
1958	301,000			301,000	32,446,000
1959	310,000	$222,000		532,000	31,914,000
1960	320,000	402,000		722,000	31,192,000
1961	329,000	396,000		725,000	30,467,000
1962	339,000	393,000		732,000	29,735,000
1963	350,000	387,000		737,000	28,998,000
1964	361,000	382,000		743,000	28,255,000
1965	372,000	378,000		750,000	27,505,000
1966	383,000	374,000		757,000	26,748,000
1967	395,000	369,000		764,000	25,984,000
1968	407,000	364,000		771,000	25,213,000
1969	420,000	360,000		780,000	24,433,000
1970	433,000	356,000		789,000	23,644,000
1971	446,000	351,000		797,000	22,847,000
1972	460,000	347,000		807,000	22,040,000
1973	475,000	343,000		818,000	21,222,000
1974	490,000	339,000		829,000	20,393,000
1975	506,000	334,000		840,000	19,553,000
1976	522,000	331,000		853,000	18,700,000
1977	539,000	326,000		865,000	17,835,000
1978	556,000	323,000		879,000	16,956,000
1979	574,000	318,000		892,000	16,064,000
1980	592,000	315,000		907,000	15,157,000
1981	611,000	311,000		922,000	14,235,000
1982	631,000	307,000		938,000	13,297,000
1983	651 000	304,000		955,000	12,342,000
1984	673,000	299,000		972,000	11,370,000
1985	695,000	296,000		991,000	10,379,000
1986	718,000	293,000		1,011,000	9,368,000
1987	742,000	289,000		1 031,000	8,337,000
1988	766,000	286,000		1,052,000	7,285,000
1989	792,000	282,000		1,074,000	6,211,000
1990	818,000	278 000		1,096,000	5,115,000
1991	845,000	275,000		1,120,000	3,995,000
1992		272,000	$864,000	1,136,000	2,859,000
1993		269,000	893,000	1,162,000	1,697,000
1994		1,620,000	77,000	1,697,000	
	18,675,000	13,091,000	1,834,000	33,600,000	

If bonds due July 1, 2005, are retired in accordance with the above schedule, the $14,925,000 principal amount of such bonds to be issued will have an average life of approximately 28½ years.

CONSTRUCTION OF THE PROJECT

The lease provides that the district employ Stone & Webster or comparable engineers to design and supervise said construction. In anticipation of this requirement, on January 9, 1951, the district entered into such a contract with Stone & Webster, and the design work, calling for bids, and the letting of contracts subject to financing, is under way. To date, contracts have been let for turbine generators, transformers, and switch gear with bid prices aggregating in excess of $9 million.

The construction schedule for the project established by Stone & Webster contemplates that active construction work will start at the site during May of 1951. The first of the 6 new units of the project is scheduled for commercial operation on November 1, 1952, the second on January 1, 1953, and the remaining 4 to follow, with the sixth and last unit to go into commercial operation by July 1, 1953.

In respect to possible delays due to scarcities of materials as a result of present and future defense production activities, the progress of the construction of the project is under continuous scrutiny by the Defense Electric Power Administration (hereinafter referred to as DEPA) with the purpose of expediting the construction to the fullest possible extent. All the contracts for equipment are required to be let with the approval of DEPA and all the contracts for all the major equipment which have already been let have been with such DEPA approval. DEPA has on its order board the positions in all the manufacturing shop schedules that are held by all powerplant equipment needed for defense industry or to supply power to defense industry. DEPA has authority by an emergency act that became effective in September 1950 to control the manufacturing schedule of all such equipment.

By numerous telegrams, letters, conferences, and inspectors at the Rock Island site, DEPA has indicated that it intends to maintain the highest priorities for the project. In addition to placing the machinery and equipment as ordered in advanced positions on manufacturing schedules, DEPA has given to the district authority to use rating DO–48 for miscellaneous materials and equipment up to $4,300,000, which is deemed adequate. Accordingly, it appears there will be no shortages of materials to affect adversely the progress of the work as scheduled by Stone & Webster.

Following herewith are the costs of constructing the project, exclusive of the 230,000-volt transmission line and facilities to Beverly Park, as estimated by Stone & Webster assuming the construction schedule established by it is maintained:

Dam and accessories	$2,160,000
Headworks and intake	781,000
Tailrace	330,000
Power-station building:	
Substructure	1,685,000
Superstructure	1,215,000
Water wheels and governors	4,600,000
Generators and exciters	4,512,000
Switching and control equipment	665,000
Transfer bus	130,000
Electrical connections and supports	1,075,000
Auxiliary equipment	335,000
Miscellaneous auxiliary equipment	25,000
Preliminary operations	30,000
Power takeoff transmission facilities	57,000
Foundations and structures, substation	40,000
Electrical equipment and transformers	840,000
Switchgear and wiring, substation	63,000
Insurance	232,000
Temporary construction	1,000,000
Commissary and camp	250,000
Rental and depreciation on construction equipment	510,000
Engineering	720,000
Office at works	475,000
Inspection and expediting	115,000
Contingencies	1,844,000
Subtotal	23,689,000
Services of constructing engineers	1,356,000
Federal and State social-security taxes	210,000
Total dam and powerhouse	25,255,000
Transmission lines to Valhalla substation	400,000
Total direct construction costs of the project	25,655,000

CAPITAL REQUIREMENTS

To finance the construction of the project, exclusive of the 230,000-volt line to Beverly Park, the district will issue $33,600,000 bonds, the details of which estimate are as follows:

Direct construction costs, including engineering	$25,655,000
State of Washington sales tax	690,000
Contingency for escalation	2,803,000
Replacement power during construction	810,000
Preliminary engineering	60,000
Organization, administrative, and supervision expense of the district	130,000
Interest during construction	1,443,000
Cost of financing, working capital, and lease rental	2,009,000
Total	33,600,000

In the event the district decides to construct a 230,000-volt line from Rock Island to Beverly Park, it will be required to issue an additional $9 million bonds, based upon the following estimate:

Cost of construction—230,000-volt transmission line 795,000 CM-ACSR—130 miles, Rock Island to Beverly Park

Rights-of-way and clearing[1]	$500,000
Steel towers, including erection	3,371,000
Conductor, including stringing	949,000
Contingencies and escalation	723,000
Subtotal	5,543,000
Engineering and supervision	416,000
Total	5,959,000

[1] Puget has granted the district certain rights-of-way in the lease. However, some additional rights-of-way and considerable clearing will be required.

Cost of construction—Two 112,500/150,000 kilovolt-ampere, 230/115/13.2 kilovolt substations—at Beverly Park and near Rock Island

Construction costs	$1,681,000
Contingencies and escalation	252,000
Subtotal	1,933,000
Engineering and supervision	145,000
Total	2,078,000

ADDITIONAL CAPITAL REQUIREMENTS

Construction costs	8,037,000
Interest during construction	423,000
Cost of financing and working capital	540,000
Total	9,000,000

FEDERAL POWER COMMISSION LICENSE

The district is expected to become on May 1, 1951, a joint licensee with Puget in FPC license No. 943 and thus will be subject, with respect to the project, to all the terms and conditions of the license. The present termination date of the license is January 20, 1980, and the Federal Government, pursuant to a recapture clause contained in the license, may acquire the entire Rock Island plant as expanded at the net investment therein, not to exceed the fair value thereof, less depreciation, plus reasonable compensation for severance damages, if any, which the licensee may suffer as a result of such recapture by the Government. The lease provides that in the event the Government so acquires such plant, the lease shall expire and the district shall be entitled to receive its just and equitable share of an amount paid by the Government for all of the facilities thereof.

The FPC also requires that the district establish, subject to the Commission's approval, the actual legitimate original cost of the district's facilities which will be included under FPC license No. 943, and to submit reports annually on the project setting forth the amounts of depreciation taken. These records, if approved or accepted by the FPC, would become the price basis of the Commission in presenting the case of the Government in the event, at the termination of the license, the Government should seek to acquire the project.

Following herewith is a tabulation in which we have combined and summarized by broad classes of facilities all the estimated costs to the district, including all indirect expenses but excluding bond discount, working capital and fiscal agent's fee, which we believe will be the "actual legitimate original cost" of the project if such costs materialize as estimated. For each classification of property we have set out the average service life and the annual rate of depreciation, which we believe will apply to each such class of property. The service lives correspond to similar service lives which have recently been subject to review by the FPC and determination by it in respect of service lives of two relatively large hydroelectric projects, namely the Safe Harbor Water Power Corp., FPC project No. 1025, and the Holtwood project of the Pennsylvania Water & Power Co.

Class of property	Estimated cost of construction	Service life years	Rate annual depreciation, percent
Dam and accessories	$3,613,000	100	1.000
Headworks and intake	1,306,000	100	1.000
Tailrace	552,000	100	1.000
Power station building	4,850,000	75	1.333
Water wheels and governors	7,692,000	55	1.818
Generators and exciters	7,545,000	55	1.818
Switching and control equipment	1,112,000	50	2.000
Electrical connections and supports	1,797,000	50	2.000
Auxiliary equipment	560,000	50	2.000
Miscellaneous auxiliary equipment	42,000	50	2.000
Power takeoff facilities	95,000	70	1.429
Substation foundations	67,000	70	1.429
Substation transformers and equipment	1,404,000	45	2.222
Substation switchgear and wiring	105,000	45	2.222
Transfer bus	217,000	50	2.000
Transmission to Valhalla substation	669,000	70	1.429
Total	31,626,000		
Average		[1] 65.17928	[1] 1.633

[1] Based upon weighted estimated cost of construction.

Based upon the above estimate of original cost and assuming that $3,750,000 additional funds will have been expended from the reserve fund for renewals and replacements and additions, and that depreciation will have accrued at the rate of 1.633 percent for 26.88 years or a total of 43.895 percent of the original cost of the initial project and 2 percent per annum on additions thereto, our estimate of the amount of the original cost, less depreciation as of the termination of the license January 20, 1980, is $20,415,000. We have hereinbefore estimated the amount of bonds which may reasonably be expected to be outstanding as of January 20, 1980, at $16,064,000. In addition, it may reasonably be expected that on that date there would be in the reserve fund at least $2,275,000, which would be available for debt retirement and which, if so used, would reduce the amount of outstanding bonds to $13,789,000, without giving effect to accruals in the bond fund subsequent to July 1, 1979.

It thus appears reasonable to anticipate that should the Government acquire Rock Island as expanded in 1980 pursuant to the recapture clause in the license, and not be required to pay severance damages, the purchase price of the project would be approximately $20,415,000 and would be substantially in excess of the amount of the bonds then outstanding.

STATE PERMITS

Puget has made application to the department of conservation and development of the State of Washington for diversion of an additional 35,000 second-feet of water for use by Rock Island as expanded and such application is now being processed and should be granted shortly.

POWER OUTPUT

The power-producing capability of the district's generating units in the project have been established by Stone & Webster based upon (*a*) regulated stream flow data supplied by Bonneville, (*b*) headwater and tail-water levels as determined by Stone & Webster, and (*c*) equipment efficiencies supplied by Allis Chalmers, manufacturer of the turbines and generators.

The generators to be installed as part of the project are 25,000 kilovolt-ampere rated capacity each, guaranteed by the manufacturer to operate continuously, without injury, at 115 percent rated capacity, and at 95 to 105 percent rated voltage; in other words, to produce 28,750 kilowatts at 100 percent power factor at normal voltage, or 27,500 kilowatts at 95.65 percent power factor. For short peaking periods up to 3 hours, especially during the cold winter months when annual maximum demands occur, the generators may be expected to provide substantially more output. Accordingly, it is reasonable to assume the safe capability of the generators, operating to supply load under a load factor comparable to the plant-capacity factors anticipated for normal operations, to be 27,500 kilowatts each or 165,000 kilowatts aggregate for the 6 generators, even though at times reactive may be imposed upon the generators to reduce the power factor to as low as 85 percent.

The hydraulic turbines are to have a rating of 34,000 horsepower (25,500 kilowatts) within cavitation limits, at 45-foot head, which is considered the average operating head. At maximum head of 50 feet, each unit is capable of producing 38,000 horsepower (27,500 kilowatts) within cavitation limits. Full gate openings at the various heads will produce substantially more power than the rated capacity for the head and within cavitation limits. Maximum head occurs when streamflow is low, while head is reduced when streamflow is high—over 85,000 second-feet at Rock Island for the 10 units of Rock Island as expanded. Low flow occurs during the water-control period on the Columbia River—from October through March until 1958. When Libby Dam in Montana is completed by the Federal Government the water-control period will become August through March. It is during the water-control period that the head on the plant is highest and demand for firm power is the greatest. Accordingly, the hydraulic turbines will have sufficient head at all times when maximum demand for firm power occurs to produce 27,500 kilowatts on each generator or an aggregate firm-power capability of 165,000 kilowatts for the district's 6 units of the project.

The lease provides that the water available for generation at Rock Island as expanded shall be first allocated to Puget's 4 existing generating units up to the limit of their present capability of 80,000 kilowatts, and only the remaining water will be available for the district's 6 units. Based upon calculations by Stone & Webster as to the output of Puget's existing 4 units and of the district's 6 new units to be installed, the 165,000-kilowatt output of the district's 6 units will not be curtailed due to this provision of the lease insofar as peaking capability is concerned unless the streamflow at the plant is less than approximately 35,000 second-feet. According to regulated streamflow data supplied by Bonneville, this should never again occur inasmuch as Grand Coulee Dam water storage is now in effective operation. As additional storage reservoirs are completed by the Government, and others, on the Columbia River and its tributaries above Rock Island, the regulation of streamflow at Rock Island will be further improved.

In respect to average output, however, the continuous capability of the district's 6 units will be reduced below 165,000 kilowatts whenever the streamflow is reduced below about 64,000 cubic feet per second. This will not reduce the firm power as defined in the lease, however, unless the streamflow should be less than 45,000 second-feet, as firm power is contemplated to be supplied on a load-factor basis averaging about 73 percent. According to regulated streamflow data supplied by Bonneville, the lowest streamflow to be anticipated at Rock Island after July 1, 1955, will be in the month of April in any minimum water year which may occur prior to 1958, when additional stream regulation from Libby Dam storage is expected to be realized. Thereafter, the lowest streamflow at any time during a minimum water year will be 63,410 second-feet, which occurs in December. Herewith are set forth the outputs at lowest flows for the conditions and years stated:

Capabilities in thousands of kilowatts

	Streamflow, cubic feet per second	10 units, Rock Island and project		4 units, Rock Island		6 units project		Low frequency
		Peak	Average	Peak	Average	Peak	Average	
MINIMUM WATER [1]								*Percent*
December 1953	49,690	245	194	80	80	165	114	69
April 1954	47,150	245	185	80	80	165	105	64
December 1954 [2]	55,080	245	214	80	80	165	134	81
April 1955 [2]	50,860	245	199	80	80	165	119	72
December 1959 [3]	63,410	245	243	80	80	165	163	99
MEDIAN WATER [4]								
December 1954 [5]	66,250	245	245	80	80	165	165	100

[1] Minimum water year, 1936–37, has occurred about once in 40 years.
[2] These flows are assumed to occur in a minimum water year until 1958–59.
[3] These flows are assumed to occur in a minimum water year after 1958–59.
[4] Median water year may be considered as the average streamflow which has occurred in the past, and may be expected to occur in the future.
[5] This is the lowest streamflow to be anticipated under median water conditions subsequent to December 1954.

From the above, it appears reasonable that at no time, except when units may be taken out of service for repairs, will the 6 units of the project be unable, due to the above-mentioned division of water clause in the lease, to supply 165,000 kilowatts under the load factor operations contemplated.

PURCHASES OF FIRMING POWER

During high-water periods, when the head is reduced on the generating units at Rock Island, firming power must be purchased. High water occurs during the summertime principally during June and July, but at this same time, the high head plants of the Government on the Columbia River, as distinguished from the low head Rock Island plant, have an abundance of otherwise waste or dump energy—at least up to extreme flood stages when 800,000 cubic feet per second are passing Celilo, a point upstream from Bonneville Dam. During such flood stages, the output of the Bonneville Dam plant is reduced materially because, like Rock Island, it also is a relatively low head plant.

Because of the usual availability on the Bonneville system of large quantities of waste or dump energy during high water on the Columbia River, Bonneville has committed itself to supply the district with all the dump energy it may require, at dump energy rates (at present the rate is 2½ mills and is expected not to be increased in 1955 when firm-power rates are expected to increase) to firm the output of the project to its average capability, based on a minimum water year, which is about 148,500 kilowatts. This firming is more than ample to enable the project to produce the full amount of firm power at the prevailing load factor.

To protect the district in the remote contingency that extreme flood may occur and Bonneville will reduce its obligation to supply dump energy for firming, the lease contains provisions whereby the district can obtain steam or other surplus energy from the Puget Sound area, through facilities of Puget.

According to regulated streamflow data supplied by Bonneville, so long as streamflow is not substantially higher than median, the need for firming energy will not be great. Generous estimates of the cost of such firming energy have been included in our pro forma estimates of expenses of the project.

SOURCES OF REVENUE

The revenues of the project are assumed in our pro forma estimates to be derived solely from the following sources:

From November 1, 1952, to July 1, 1955:

(*a*) Firm power sales to Alcoa at the contracted rate of $20 per kilowatt-year. Alcoa is required further to reimburse the district for any charges for upstream storage regulation benefits assessed against the district by the FPC, and Alcoa is also required to purchase from Bonneville its own firming power when the project's output is curtailed because of high water.

(*b*) Dump energy sales to Puget at 2 mills per kilowatt-hour at Rock Island plus 1 mill per kilowatt-hour wheeling charges for the energy delivered to Puget in the Puget Sound area.

From July 1, 1955, to the termination of lease:

(*a*) From firm power utilized by the distribution system.

(*b*) From firm power made available to Puget or sold to others at not less than the service-at-cost rate.

NOTE.—From July 1, 1955, to July 1, 1957, certain amounts of firm power will also be supplied to Alcoa, and appear in our pro forma estimates as revenue. However, in determining the amounts of revenues to be derived from Puget and the distribution system, such Alcoa revenues will serve as a credit to the cost of power to Puget and the distribution system under the service-at-cost rate.

Substantial quantities of dump energy will be available for sale subsequent to July 1, 1955, and the revenues therefrom would be credited against the cost of power. However, our pro-forma estimates do not reflect that any such dump energy sales will have been made for the reason that the time of occurrence and extent of dump energy or the market value or marketability of it are not susceptible of accurate evaluation at this time.

The lease is clear in that the district is not bound to sell any power or energy to Puget at any time although the district is bound by contract to supply Alcoa with stated amounts of firm power until July 1, 1957, when the Alcoa contract terminates. Nevertheless, Puget is obligated by the terms of the lease to take or pay for all firm power made available to it after July 1, 1955, by the district.

It is unreasonable to assume that the district will sell its available surplus firm power after July 1, 1955, to anyone other than Puget as outlined above—except for the specified amounts already contracted to Alcoa up to July 1, 1957—unless it can obtain more net revenues from such other customer.

After January 1, 1955, it is expected that Bonneville firm power will be obtainable at a basic rate of $22.50 per kilowatt-year. The basic costs of power output of the project, based upon 1950 wage and materials price levels, is estimated at approximately $19 per kilowatt-year—exclusive of any allowance for lease rental payment to Puget but including an allowance of $1 per kilowatt-year for benefits to the project resulting from upstream storage provided by others. The lease contains provisions, the effect of which are, that to the extent that firm power up to 120,000 kilowatts, which otherwise could be made available to Puget, is not made available to it, the district shall pay a lease-rental equivalent to $4 per kilowatt-year, as explained hereinafter under "Lease rental." In addition, Puget agrees in the lease to share all costs of power, whatever they may be, and should prices rise above 1950 levels, or should upstream benefit charges be more than $1 per kilowatt-year, the district would be obliged to charge more than the expected then going rate for Bonneville firm power in order to derive as much net revenue as it otherwise would receive by making such firm power available to Puget. Thus, at a minimum, such power, if sold to others than Puget, must be sold for at least $23 per kilowatt-year, which is higher than the rate that is expected to be available from Bonneville for its power, and therefore the district could not reasonably expect to sell its power on a competitive basis with Bonneville.

REVENUES—ALCOA POWER CONTRACT

Revenues from firm power sales to Alcoa for the period beginning with the scheduled date of commercial operation of the first generating unit to July 1, 1955, were determined under the terms of the district's contract with Alcoa, the rate, net to the district, being $20 per kilowatt-year, or $1.66⅔ per kilowatt-month. This rate was applied to the basic amount contracted, or 120,000 kilowatts, except for monthly periods if and to the extent that the capability of the project is reduced due to high streamflow, during which times the rate was applied to the capability estimated to be available, and except for the initial period when the rate was applied to the aggregate capability of the project units beginning with the time they are scheduled to come into commercial operation.

For the period July 1, 1955, to July 1, 1957, revenues from Alcoa were determined by applying the rate to the reduced amounts of power scheduled for delivery under the contract.

REVENUES—DUMP-ENERGY SALES

Revenues from sales of dump energy have been included in the years 1953, 1954, and 1955 only and on the basis of our analysis of the probable energy available from the project in excess of that committed to Alcoa and of market conditions which may prevail during that period. A value of 3 mills per kilowatt-hour

delivered in the Puget Sound area was placed on the dump energy considered as available and marketable.

REVENUES—SUBSEQUENT TO JULY 1, 1955

The aggregate revenues from sales of firm power to both the district and Puget, beginning July 1, 1955, are the summation of all operating expenses of the project, plus debt service on the bonds, plus 35 percent of the maximum debt, plus payments on certificates of indebtedness, less revenues from Alcoa during the period July 1, 1955, to July 1, 1957. Such aggregate revenues are also referred to as net power cost in the lease.

The revenues to be paid individually by the district and Puget result from the relative percentage of maximum amounts of firm power taken by the district and made available to Puget, respectively, during a given period. An example of the determination of the revenues to be paid to the project for firm power by the district and Puget, or the net power cost, taken for the year 1960, to exclude the temporary effect of Alcoa, follows:

Determination of net power cost, year 1960 (based on 1950 wage and materials price levels)

Operating expense and taxes:	
Operation and maintenance (performed by Puget)	$233,200
District direct expenses	45,200
Taxes	69,200
Transmission expenses	642,900
Purchased power	25,300
Cost of upstream benefits	165,000
Total operating expenses and taxes	1,180,800
Debt service:	
On the bonds [1]	1,380,000
On certificates of indebtedness	26,000
Total debt service	1,406,000
Reserves: 35 percent of debt service on the bonds [1]	482,800
Total expenses, debt service, and reserves, or net power cost	3,069,600

Division of net power cost

	Kilowatts at plant bus	Percent
District's "cost demand" [2]	42,900	25.67
Puget's "cost demand" [2]	124,200	74.33
Total	167,100	100.00
District's cost share		$788,000
Puget's cost share		2,281,600
Total revenue to project		3,069,600

[1] Reflects retirement of bonds due July 1, 2005, through operation of the reserve fund as shown on pp. 9 and 10 hereof.
[2] Not coincidental.

COSTS OF OPERATION OF THE PROJECT

(a) *General*

The operating and maintenance expenses of the project are based upon the lease and the operating agreement whereby the district will pay to Puget, as operating agent for the district, a fixed pro rata (60 percent) share of all normal operating and maintenance expense of Rock Island as expanded.

The district's direct expenses represent an estimate of the cost of a staff headed by a project engineer responsible for the district's interests in the project and the operation and accounting of the project, together with materials, supplies, and expenses of the district directly related thereto.

Transmission expense is designed to cover the operation and maintenance of the facilities of the project originally to be constructed, the theoretical cost of

operation and maintenance, debt service and reserves on a 230,000-volt transmission line ultimately proposed for delivery of power to and from the Puget Sound area, wheeling costs on dump energy during certain years, and wheeling costs for delivery of power to the district's load centers.

An estimate of the costs of upstream benefits is subject to many variable factors. However, based on assumptions believed to be reasonable, we have determined upon estimates of such costs ranging from 75 cents to $3 per kilowatt of capacity depending on stream-flow conditions, and we have come to the conclusion that an overall average of $1 per kilowatt per year is reasonable in a long-term projection.

Purchased power costs included are for firming up of the output of the generating units of the project during the high-water months, usually June and July. These costs are based on letters of intent received by the district from Bonneville in which Bonneville has agreed to supply firming energy for such purpose at the going rate of dump energy which at present is 2½ mills and which particular rate is not expected to increase.

During the period beginning with the commercial operation of the first generating unit to July 1, 1955, certain lease payments are to be made to Puget as set forth below under "Lease rental."

Taxes indicated are those which the district will be required to pay in accordance with existing statutes, because of the sale of power produced by the project.

(*b*) *Lease rental*

The lease provides that after the initial period which terminates on July 1, 1957, if Puget does not have any firm power made available to it, the district will pay Puget the equivalent of $480,000 per annum as a lease rental payment.

During the period beginning January 1, 1952, and ending June 30, 1955, the district is required by the lease to pay Puget as rent a fixed amount of $82,500 per annum plus an amount equal to one-half of all revenues, less costs of wheeling and other transmission costs and taxes, assessments, or other governmental charges against such revenues, which may be received by the district from the sale of dump energy. We have estimated the lease-rental payments, including contingent payments resulting from the sale of dump energy, which will be payable from the operating revenues of the project during this period as follows:

	Fixed rental	Contingent rental	Total rental
1952 [1]	$2,300		$2,300
1953 [2]	65,300	$50,200	115,500
1954	82,500	95,800	178,300
1955 [3]	41,300	57,500	98,800

[1] In 1952 the full monthly fixed rental amounts from Jan. 1 to Nov. 1, and for the month of November and December ⅝ of the fixed monthly rental, will be a construction charge and paid out of proceeds of the bonds. No dump energy is expected to be sold during this year.

[2] In 1953, the full monthly fixed rental will not be paid out of operating revenues until July. The balance is paid out of bond proceeds and charged to construction.

[3] For 1st half of 1955 only.

After July 1, 1955, unless the district makes available to Puget 120,000 kilowatts of firm power (except that 60,000 kilowatts from July 1, 1955, to June 30, 1956, and 30,000 kilowatts from July 1, 1956, to June 30, 1957, which will be supplied to Alcoa is specifically eliminated for this purpose only from the determination of the amount of available firm power) the district shall make a lease-rental payment of 33⅓ cents per month ($4 per kilowatt-year) times the number of kilowatts by which the district does not make available 120,000 kilowatts of such firm power. For example, the expected firm-power capability of the project is 165,000 kilowatts, which will thereby permit the district to make available 120,000 kilowatts of firm power to Puget and retain 45,000 kilowatts for its own use without any rental payments to Puget. It is not anticipated that the firm-power requirements of the distribution system will reach 45,000 kilowatts until 1963. Also, according to the lease, Puget does not receive any extra lease-rental payments resulting from the sale of dump energy after July 1, 1955. Accordingly, it is anticipated that from July 1, 1955, until about 1963, Pudget will not receive any rental. In 1964 it is anticipated the rental payment will be about $6,000, and will increase each year thereafter by that amount in proportion to the distribution system's load growth until the district is utilizing all of the 165,000 kilowatts, at which time $480,000 per annum in rental will be paid. This is not expected to occur within the life of the lease unless the distribution system load enjoys a higher rate of growth than presently anticipated.

(c) Transmission expenses

Until July 1, 1955, the only transmission expenses to be paid by the project will be the minor direct expense of operating and maintaining the transmission facilities from Rock Island to the Valhalla substation and the cost of wheeling dump energy over the Bonneville system to the Puget Sound area. Bonneville has given the district a letter commitment to wheel such energy at the rate of 1 mill per kilowatt-hour of such energy so delivered.

Subsequent to July 1, 1955, when firm power is to be delivered to the district and to Puget in the Puget Sound area, transmission expense will consist of the following:

(*a*) Direct operation and maintenance expenses on the 3½ miles of line from Rock Island to Valhalla substation, the annual costs of which are estimated at		$2,700
(*b*) The expense of wheeling firm power over existing Puget transmission lines from Rock Island to the distribution-system load centers at Wenatchee and Dryden—average distance about 15 miles—the annual charges of which are estimated at		13,600
(*c*) The expense of transmitting firm power from Rock Island to the Puget Sound area. Our pro forma estimates of operating results assume that a 230,000-volt line from Rock Island to the Beverly Park substation of Puget, along with necessary transformers, switches, and other facilities will have been built and utilized to transmit such power:		
Operation and maintenance:		
130 miles of 230-kilovolt line	$60,000	
Substation at Rock Island	17,100	
Substation at Beverly Park	37,640	
Debt service on $9,000,000 bonds	374,000	
Reserve requirements (35 percent of debt service)	131,000	
Certificates of indebtedness	6,900	
Total		626,640
Total transmission expenses		642,940

(d) Other expenses of the project

The operating agreement between the district and Puget provides that throughout the term of the lease, Puget will operate the project (exclusive of transmission lines) along with Rock Island and charge the district 60 percent of the actual direct total costs of operating and maintaining the project (exclusive of transmission lines), except that any maintenance job costing $10,000 or more will be charged directly to the owner of the facility upon which the work is done. All renewals, replacements, and additions to the project are to be paid directly by the district. In addition to the direct costs, Puget will add applicable Federal and State social-security taxes and 16 percent for certain indirect expenses.

In addition the district will have certain direct expense incident to conducting the affairs of the project.

An estimate, prepared jointly by Puget engineers and ourselves, indicates the following annual charges by Puget for operating such project facilities:

Operation	[1] $152,430
Maintenance	123,500
Division of power supply of Puget	10.485
Subtotal	286,415
Plus:	
16 percent for indirect expense	45,826
Social-security taxes	7,418
Total	339,659
Project's share—60 percent	203,800

[1] Exclusive of FPC license fee.

An estimate of the district's annual direct salaries and other expenses of the project (exclusive of transmission expense, lease payment, and FPC license fees), prepared jointly by the district's project engineer and ourselves, follows:

Project engineer	$12,598
Secretary-clerk	3,010
Field engineer	10,932
Accountant, one-half time	4,500
Materials, supplies, rent, and miscellaneous	5,160
Insurance	9,000
Total	45,200

The district must also pay directly the annual FPC license fee chargeable to the project. This fee varies with energy output from $29,400 to $31,300 and is approximately $30,000 annually.

(e) Taxes

In addition to the direct expenses chargeable to the project, there will be an additional amount of State privilege tax which the district will be required by law to pay to the extent it supplies its own consumers with power from the project. This tax is imposed on the revenues derived from the ultimate consumer from the sale of such energy. Therefore, to the extent that the output from the project is utilized by the distribution system, Alcoa, or similar customers, the taxes are computed on the resale revenues of the distribution system, Alcoa, or similar customers. Similarly to the extent that Douglas district, a wholesale customer of the distribution system, utilizes the power from the project, taxes must likewise be computed and paid. The State privilege tax is computed at 5 percent of retail revenues derived by any public-utility district from the sale of energy generated in a powerplant owned by a public-utility district, and at the rate of 2 percent of retail revenues derived from the sale of energy which is not so generated. The district is now paying a privilege tax of 2 percent on all of its revenues derived from the sale of energy except that generated by its Dryden plant, upon which it pays 5 percent. Therefore, when the district replaces Bonneville power with project power it will be required to pay an additional privilege tax amounting to 3 percent of such revenues, which will be chargeable to the project. Also sales to Alcoa or to similar direct customers of the project (other than another utility) will require payment of a privilege tax of the full 5 percent. In addition the Alcoa (or similar customer) revenues are subject to a 3-percent State business tax. Estimates of the amounts of these taxes which will be absorbed by the project have been made and are included in our pro forma statements.

(f) Operating earnings of the project

In the following table B are set forth the pro forma operating earnings of the project from the beginning of commercial operation of the first unit in November 1952 through 1960. This table is based upon continuation of 1950 price levels of wages and materials and in our opinion fairly reflects all factors affecting the operations as discussed hereinbefore. After the year 1962, payments of certificates of indebtedness will cease and, depending upon the number of additional bonds retired from the reserve fund, the annual debt service and reserve requirements will be likewise reduced. However, after the district is itself utilizing more of the firm power, and is required to pay Puget a rental at the rate of $4 per kilowatt-year under the terms of the lease, the power costs of the distribution system will be increased by such amounts. The lease provides that such lease rental payments are not to be included in the cost of firm power supplied by the project to Puget.

Respectfully submitted.

R. W. BECK & ASSOCIATES,
By R. W. BECK, *Chief Engineer.*

TABLE B.—*Pro forma earnings of the project*

[Based on 1950 price levels of wages and materials]

	Year ending Dec. 31—								
	1952	1953	1954	1955	1956	1957	1958	1959	1960
Operating revenues:									
From sales to:									
Alcoa	$91,600	$1,980,600	$2,330,200	$1,734,400	$900,000	$300,000			
Puget				637,700	1,560,800	2,096,600	$2,348,200	$2,324,000	$2,281,600
District				331,700	700,900	716,700	741,100	761,900	788,000
Sales of dump energy		150,700	287,500	172,400					
Total operating revenues	91,600	2,131,300	2,617,700	2,876,200	3,161,700	3,113,300	3,089,300	3,085,900	3,069,600
Operating expenses and taxes:									
Lease payment [1]	2,300	115,500	178,300	98,800					
Operation and maintenance	6,700	185,900	233,500	234,800	235,100	234,100	233,100	233,200	233,200
District direct	1,300	35,800	45,200	45,200	45,200	45,200	45,200	45,200	45,200
Cost of upstream benefits [2]				52,500	105,000	105,000	105,000	165,000	165,000
Purchased power				21,100	92,500	91,100	89,700	29,300	25,300
Transmission [3]	500	52,900	98,500	380,300	642,900	642,900	642,900	642,900	642,900
Total operating expenses	10,800	390,100	555,500	832,700	1,120,700	1,118,300	1,115,900	1,115,600	1,111,600
Taxes	7,300	158,500	186,400	170,600	132,000	86,000	64,400	66,700	69,200
Total operating expenses and taxes	18,100	548,600	741,900	1,003,300	1,252,700	1,204,300	1,180,300	1,182,300	1,180,800
Net operating revenues (before depreciation)	73,500	1,582,700	1,875,800	1,872,900	1,909,000	1,909,000	1,909,000	1,903,600	1,888,800
Other revenue deductions:									
Debt service [4]	30,500	870,300	1,247,500	1,395,000	1,395,000	1,395,000	1,395,000	[5] 1,391,000	[5] 1,380,000
Payments, other obligations [6]		26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000
Reserve requirements	43,000	686,400	602,300	451,900	488,000	488,000	488,000	[5] 486,600	[5] 482,800
Surplus revenues [7]									
Maximum debt service (maximum principal and interest thereafter payable on the bonds) times earned	([8])	([8])	1.34	1.34	1.37	1.37	1.37	1.37	1.37

[1] Based on ½ of net revenues from sales of dump energy.
[2] Alcoa agrees to pay upstream benefit costs until 1955.
[3] Transmission expenses subsequent to July 1, 1955, have been estimated in an amount which includes debt service and reserve requirements on $9,000,000 additional bonds.
[4] Approximate average debt service on $33,600,000 bonds.
[5] Reflects retirement of bonds due July 1, 2005, through operation of the reserve fund as shown on pp. 9 and 10 of exhibit A.
[6] Payable to the district's fiscal agent.
[7] There will be no surplus revenues, because the bond resolution requires that all surplus earnings, initially, and until July 1, 1955, be transferred to the reserve fund. Thereafter it is assumed that firm power will be sold to the distribution system and to Puget under the service-at-cost rate, whereby any revenues from other sources in excess of those required to maintain the coverage of maximum debt service will be used to reduce the cost of firm power to those two customers.
[8] Interest during construction is capitalized; first maturity of the bonds is July 1, 1955.

EXHIBIT B

RESOLUTION NO. 292—A RESOLUTION PROVIDING A PLAN AND SYSTEM FOR THE ACQUISITION BY PURCHASE AND CONSTRUCTION OF AN ELECTRIC UTILITY SYSTEM OF PUBLIC UTILITY DISTRICT NO. 1 OF CHELAN COUNTY, WASH., AND PROVIDING FOR THE ISSUANCE OF REVENUE BONDS FOR SAID PURPOSES AND FOR THE CREATION OF A SPECIAL FUND FOR THE PAYMENT THEREOF

Whereas Public Utility District No. 1 of Chelan County, Washington (hereinafter referred to as the District), owns and operates an electric utility system (as such electric system is defined in Resolution No. 73 adopted by the commission of said district on July 16, 1948) for the generation, transmission, and distribution of electric energy for all purposes; and

Whereas the district has heretofore issued its electric revenue bonds, series of 1948, pursuant to said Resolution No. 73, which bonds are payable from the gross revenues of said electric system; and

Whereas said Resolution No. 73 authorizing the issuance of said electric revenue bonds, series of 1948, provides that the district may acquire additional generating, transmission, and distribution facilities as a separate utility system and that additional electric revenue bonds may be issued by the district payable from the gross revenues of such additional facilities; and

Whereas the district deems it advisable to acquire by purchase and construction certain additional generation and transmission facilities as a separate utility system and to issue electric revenue bonds for said purposes, such bonds to be payable from the gross revenues of such additional facilities, and any additions, improvements and betterments thereto and extensions thereof which may hereafter be constructed or acquired by the district: Now, therefore, be it

Resolved by the Commission of Public Utility District No. 1 of Chelan County, Washington: SECTION 1. As used in this resolution the following words and phrases shall have the meanings hereinafter set forth unless the context shall clearly indicate that another meaning is intended:

A. The term "bonds" shall mean the Rock Island hydroelectric system electric revenue bonds, series of 1951, issued pursuant to and under the authority of and for the purposes provided in this resolution.

B. The term "1948 bonds" shall mean the electric revenue bonds, series of 1948, issued pursuant to and under the authority of and for the purposes set forth in Resolution No. 73 adopted by the commission of the district on July 16, 1948.

C. The term "electric system" shall mean the electric utility properties and assets, real and personal, tangible and intangible, as defined in Resolution No. 73, now owned and operated by the district, and all property and assets hereafter constructed or acquired as additions, improvements, and betterments to and extensions of such property, but shall not include the generating and transmission facilities that will be hereafter constructed or acquired by the district under the provisions of this resolution as a separate utility system, the revenues of which are hereinafter pledged to the payment of the bonds issued to purchase, construct, or otherwise acquire said separate utility system.

D. The term "production system" shall mean the Rock Island hydroelectric production system consisting of the generation and transmission facilities constructed or acquired as a separate utility system pursuant to this resolution and all additions, betterments, and improvements to and extensions of said facilities hereafter constructed or acquired by the district, but shall not include any such additions, betterments, improvements, and extensions made in connection with the electric system or any additional generating, transmission, and distribution facilities hereafter constructed or acquired by the district as a separate utility system the revenues of which may be pledged to the payment of bonds issued to purchase, construct, or otherwise acquire such separate utility system.

SEC. 2. The public interest, welfare, convenience, and necessity require the acquisition by purchase and construction by the district of certain generation and transmission facilities to be known as the Rock Island hydroelectric production system as an electric utility system for the purpose of supplying the district and the inhabitants thereof and any other persons, including public or private corporations, within or without its limits with electricity for all uses.

SEC. 3. The district hereby specifies and adopts the plan or system hereinafter set forth for the acquisition by purchase and construction of the following generation and transmission facilities constituting the Rock Island hydroelectric production system of the district, to wit:

A. Installation of six hydroelectric generating units of twenty-five thousand kilovolt-ampere each and such additional machinery and equipment at Rock Island Dam of the Puget Sound Power & Light Company as may be necessary or convenient to place same in operation and to raise the dam, extend the existing powerhouse and install floodgates for said purpose, all as provided in a certain lease agreement between the district and said Puget Sound Power & Light Company, dated April 26, 1951.

B. Install and construct the necessary substations, transformers, transmission lines, and appurtenant equipment to connect said generating units with the existing electric distribution system of the district and integrate the said units and distribution system into an efficient, economical, and integrated electric system and unify the operation thereof, and to interconnect the production system with the Bonneville Power Administration and other electric systems and with customers of the production system at or near the Rock Island Dam.

C. Construct a high-voltage transmission line from said generating units to connect same with the Beverly Park substation of the Puget Sound Power & Light Company and with the Bonneville Power Administration and other electric systems at or near Beverly Park, Washington.

D. Acquire all necessary lands, easements, rights-of-way, and other rights and privileges necessary in order to install and maintain said additions, improvements, betterments, and extensions aforesaid.

E. All surveys, appraisals, and engineering investigations and designs necessary or incidental to the financing and acquisition of said additions, improvements, betterments, and extensions.

The district may modify details of the foregoing system or plan where deemed necessary or advisable in the judgment of the commission of the district when not substantially changing the purposes herein specified. Should any part or provisions of the foregoing system or plan be held to be invalid, such holding shall not affect the validity of any other portion or provision thereof.

The production system herein specified and adopted shall consist of the electric works, plants, and facilities hereinabove described and to be acquired, together with all additions, improvements, and betterments thereto and extensions thereof which may be hereafter acquired by purchase or condemnation or constructed by the district.

The commission finds and determines that the acquisition of the foregoing production system will properly and advantageously contribute to the conduct of the business of the district in an efficient and economical manner.

SEC. 4. The estimated cost of the plan or system herein specified and adopted for the acquisition, by purchase, and construction, of the production system is hereby declared as near as may be to be the sum of $42,600,000.

SEC. 5. The gross revenues and proceeds to be derived by the district from the operation of the production system to be acquired hereunder at the rates charged and to be charged for the electricity furnished thereby will be sufficient, in the judgment of the commission of the district, to meet all expenses of operation and maintenance and to permit the setting aside out of such gross revenues in a special fund created in section 10 hereof of such amounts as may be required to pay the principal of and interest on the bonds hereinafter authorized to be issued as the same become due and payable.

SEC. 6. For the purpose of defraying the cost of the acquisition and construction of the production system herein specified and adopted, there is hereby authorized to be issued $42,600,000 Rock Island hydroelectric system electric revenue bonds, series of 1951, of the district (herein referred to as the bonds), dated April 1, 1951, of the denomination of $1,000 each. Said bonds shall mature serially on the following dates, to wit:

Maturity date	Amount	Maturity date	Amount
July 1, 1955	$350,000	July 1, 1974	$621,000
July 1, 1956	360,000	July 1, 1975	642,000
July 1, 1957	372,000	July 1, 1976	662,000
July 1, 1958	382,000	July 1, 1977	683,000
July 1, 1959	393,000	July 1, 1978	705,000
July 1, 1960	406,000	July 1, 1979	728,000
July 1, 1961	417,000	July 1, 1980	751,000
July 1, 1962	430,000	July 1, 1981	775,000
July 1, 1963	444,000	July 1, 1982	800,000
July 1, 1964	458,000	July 1, 1983	825,000
July 1, 1965	472,000	July 1, 1984	853,000
July 1, 1966	486,000	July 1, 1985	881,000
July 1, 1967	501,000	July 1, 1986	909,000
July 1, 1968	516,000	July 1, 1987	940,000
July 1, 1969	533,000	July 1, 1988	970,000
July 1, 1970	549,000	July 1, 1989	1,003,000
July 1, 1971	566,000	July 1, 1990	1,036,000
July 1, 1972	583,000	July 1, 1991	1,070,000
July 1, 1973	602,000	July 1, 2005	18,926,000

Said bonds shall be numbered, and interest on said bonds shall be paid at the rates herein and hereafter fixed by the commission and shall be payable semi-annually on the first day of January and July in each year commencing on January 1, 1952. Both principal of and interest on said bonds shall be payable in lawful money of the United States of America, at the option of the holder, either at the office of the county treasurer in the city of Wenatchee, Washington, or at the office of the fiscal agency of the State of Washington in the borough of Manhattan, city and State of New York (hereinafter referred to as the paying agents), and shall be obligations only against the special fund created and established in section 10 hereof. Said bonds shall be redeemable at the option of the district (1) in whole at any time on or after July 1, 1954, and (2) in part (but only from moneys available for said purpose from sources other than the proceeds of the sale of bonds) at any time on or after July 1, 1954, in any case the redemption price to be paid with respect to each bond to be the percentage of the principal amount thereof as set forth below, plus accrued interest thereon to the date of redemption, to wit:

If redeemed—	*Redemption price (percentage of principal amount)*
On or after July 1, 1954, to and including July 1, 1961	103.00
Thereafter to and including July 1, 1966	102.50
Thereafter to and including July 1, 1971	102.00
Thereafter to and including July 1, 1976	101.50
Thereafter at	101.00

Provided, however, That the bonds maturing on July 1, 2005, shall be redeemable in part as set forth in clause (2) above at any time on or after July 1, 1954, at 101 percent of the principal amount thereof plus accrued interest to the redemption date. In the event of the redemption of part only of the bonds at any time outstanding, the bonds first to be redeemed shall be the bonds maturing on July 1, 2005, and after all of said bonds have been redeemed, then in the inverse order of maturities, and in the event all bonds of a maturity then subject to redemption are not to be called for redemption, the bonds of such maturity to be redeemed shall be selected by lot.

In the event the district shall determine to redeem all or any part of the bonds prior to maturity thereof, notice of such redemption shall be given by publication of a notice in a financial paper or in a daily newspaper printed in the English language and published and of general circulation in each of the cities of Chicago, Illinois, and New York, New York, each such publication to be made at least once in each calendar week on any day of the week for not less than two consecutive calendar weeks, the date of first publication thereof to be not less than thirty nor more than forty-five days prior to the date fixed for redemption. Notice of redemption having been given by publication as above provided, the bonds so called for redemption shall, on the date specified in such notice, become due and payable at the applicable redemption prices herein provided, and from and after the date so fixed for redemption (unless the district shall default in the payment of the bonds so

called for redemption) interest on said bonds so called for redemption shall cease to accrue.

SEC. 7. The bonds and the annexed interest coupons, the form for registration, and certificate of the State auditor shall be in substantially the following form, to wit:

UNITED STATES OF AMERICA

STATE OF WASHINGTON

PUBLIC UTILITY DISTRICT NO. 1 OF CHELAN COUNTY

ROCK ISLAND HYDROELECTRIC SYSTEM ELECTRIC REVENUE BOND, SERIES OF 1951

No.---------- $1,000

Public Utility District No. 1 of Chelan County, Washington, a municipal corporation of the State of Washington (hereinafter called the district), for value received hereby promises to pay to the bearer or, if this bond be registered as to principal, to the registered owner hereof, on the first day of , 19 , the principal sum of $1,000 and to pay interest on such principal sum from the date hereof at the rate of per centum per annum, such interest to be payable January 1, 1952, and semiannually thereafter on the first day of July and the first day of January in each year until the maturity of this bond or, if default should be made in the payment of the principal hereof when the same shall become due and payable, at the legal rate of interest (but not less than 6 per centum per annum) until the payment in full of such principal sum, but in the case of the interest due on or before maturity only upon the presentation and surrender of the respective interest coupons representing such interest hereto attached as they severally mature. The principal of and interest on this bond are payable solely out of the special fund of the district known as the Rock Island hydroelectric system electric revenue bonds, series of 1951, bond fund (hereinafter referred to as the bond fund). Payment of such principal and interest will be made at the option of the holder hereof or of such coupons, as the case may be, either at the office of the county treasurer in the city of Wenatchee, Washington, or at the office of the fiscal agency of the State of Washington in the borough of Manhattan, city and State of New York, in such coin or currency of the United States of America as at the time of payment is legal tender for the payment of public and private debts.

This bond and the issue of which it forms a part are issued under the authority of resolution No. 292 adopted by the commission on the 23d day of April 1951 (hereinafter referred to as the "bond resolution"), for the purpose of acquiring by purchase and construction certain generation and transmission facilities constituting an electric utility system of the district known as the Rock Island hydroelectric production system, under the authority of and in full compliance with the constitution and statutes of the State of Washington, including chapter 1 of the laws of Washington, 1931, as amended, and proceedings of the commismission of the district duly adopted.

Under the bond resolution, the district is obligated to set aside and pay into the bond fund out of the gross revenues of said Rock Island hydroelectric production system, including all additions, betterments, and improvements thereto and extensions thereof, certain fixed amounts sufficient to pay the principal of and interest on all the bonds issued under the bond resolution at any time outstanding as the same become due and payable, all as more fully provided in the bond resolution. The bonds of the issue of which this bond is a part and the interest thereon constitute the only charge against such bond fund and the amount of the revenues pledged to said bond fund.

In and by the bond resolution the district covenants to establish, maintain, and collect rates or charges for electric energy and other services, facilities, and commodities sold, furnished, or supplied by the Rock Island hydroelectric production division of the district, which shall be fair and nondiscriminatory and adequate to provide revenues sufficient for the fixed amounts which the district is obligated to set aside in the bond fund to pay the principal of and interest on this bond and the issue of which this bond is a part, and for the proper operation and maintenance of the Rock Island hydroelectric production system of the district and all necessary repairs thereto and replacements and renewals thereof. Reference to the bond resolution is made for the description of the bond fund and the covenants and declarations of the district and other terms and conditions upon which the bonds authorized thereby have been issued.

The bonds of the issue of which this bond is a part are subject to redemption at the option of the district (1) in whole at any time on or after July 1, 1954, and (2) in part (but only from moneys available for said purpose from sources other than the proceeds of the sale of bonds) at any time on or after July 1, 1954, in any case the redemption price to be paid with respect to each bond to be the percentage of the principal amount thereof as set forth below, plus accrued interest thereon to the date of redemption, to wit:

If redeemed—	*Redemption price (percentage of principal amount)*
On or after July 1, 1954, to and including July 1, 1961	103.00
Thereafter to and including July 1, 1966	102.50
Thereafter to and including July 1, 1971	102.00
Thereafter to and including July 1, 1976	101.50
Thereafter at	101.00

Provided, however, That the bonds maturing on July 1, 2005, shall be redeemable in part as set forth above in clause (2) of this paragraph at any time on or after July 1, 1954, at 101 percent of the principal amount thereof plus accrued interest to the redemption date. In the event of the redemption of part only of the bonds at any time outstanding, the bonds first to be redeemed shall be the bonds maturing on July 1, 2005, and after all of said bonds have been redeemed, then in the inverse order of maturities, and in the event all bonds of a maturity then subject to redemption are not to be called for redemption, the bonds of such maturity to be redeemed shall be selected by lot.

In the event the district should exercise its option to redeem any of the bonds of the issue of which this bond is a part, notice of such intention shall be given by publication of a notice in a financial paper or in a daily newspaper printed in the English language and published and of general circulation in each of the cities of Chicago, Illinois, and New York, New York, each such publication to be made at least once in each calendar week on any day of the week for not less than two consecutive calendar weeks, the date of first publication thereof to be not less than thirty nor more than forty-five days prior to the date fixed for redemption. Notice of redemption having been given by publication as above provided, the bonds so called for redemption shall, on the date specified in such notice, become due and payable at the applicable redemption prices herein provided, and from and after the date so fixed for redemption (unless the district shall default in the payment of the bonds so called for redemption) interest on said bonds so called for redemption shall cease to accrue.

This bond may be registered as to principal only in accordance with the provisions endorsed hereon.

This bond is a negotiable instrument under section 11611–11 of Remington's Revised Statutes of Washington (1941 supp.).

It is hereby certified, recited, and declared that all acts, conditions, and things required by the constitution and statutes of the State of Washington to exist, to have happened and to have been performed precedent to and in the issuance of this bond do exist, have happened, and have performed in due time, form, and manner, and that the amount of this bond, together with all other indebtedness of the district, does not exceed any constitutional or statutory limitations of indebtedness.

In witness whereof, Public Utility District No. 1 of Chelan County, Washington, by its commission, has caused this bond to be executed in its name by the president of its commission, and attested by the secretary of its commission thereunto duly authorized, and the seal of said district to be hereunto affixed, the interest coupons hereto attached to be executed by the facsimile signatures of said officers, all as of the 1st day of April 1951.

PUBLIC UTILITY DISTRICT NO. 1
OF CHELAN COUNTY, WASHINGTON,

_____
President

Attest:

_____
Secretary

[SEAL]

[FORM OF COUPON]

No._____ $_____

On the day of , 19 , unless the bond hereafter mentioned shall have been duly called for previous redemption and payment of the redemption price duly made or provided for, Public Utility District No. 1 of Chelan County, Washington, a municipal corporation of the State of Washington, will pay to bearer at the office of the county treasurer in the city of Wenatchee, Washington, or at the office of the fiscal agency of the State of Washington in the borough of Manhattan, city and State of New York, at the option of the holder, but solely out of the special fund applicable to the payment thereof as provided in said bond, the sum of dollars, in such coin or currency of the United States of America as at the time of payment is legal tender for the payment of public and private debts, being months' interest then due on its Rock Island Hydro-Electric System electric revenue bond, series of 1951, dated April 1, 1951, and numbered .

_____
President

_____
Secretary

[FORM OF REGISTRATION]

This bond may be registered as to principal only in the name of the holder on books of the district at the office of the county treasurer in the city of Wenatchee, Washington, such registration to be noted in the registration blank below. After such registration no transfer hereof shall be valid unless made on said books and similarly noted hereon, but such registration may be made to bearer and thereupon transferability by delivery shall be restored. The registration of this bond as to principal only shall not affect the coupons which shall at all times be transferable merely by delivery.

(Notice: No writing on this bond except by registrar.)

Date of Registration	Name of registered owner	Signature of registrar
_____	_____	_____
_____	_____	_____
_____	_____	_____

[FORM OF STATE AUDITOR'S CERTIFICATE OF REGISTRATION]

STATE OF WASHINGTON,
Office of State Auditor, ss:

I do hereby certify that I have examined the within bond and a certified copy of the resolution authorizing the issuance thereof, and such additional information with respect thereto as is required by me; that the same has been registered in my office in accordance with the provisions of section 11611-6, Remington's Revised Statutes of Washington (1941 supp.).

Witness my hand and seal of office this day of , 19 .

_____
Auditor of the State of Washington

By _____
Deputy State Auditor

SEC. 8. The bonds shall be signed on behalf of the district by the president and attested by the secretary, and the seal of the district shall be affixed to each of said bonds, and the coupons thereto attached shall be executed with the facsimile signatures of said officers. In case any of the officers who shall have signed, attested, authenticated, registered, or sealed any of said bonds or interest coupons, shall cease to be such officers before the bonds and interest coupons so signed, attested, authenticated, registered or sealed shall have been actually issued, such bonds and interest coupons shall be valid nevertheless and may be issued by the district with the same effect as though the persons who had signed, attested, authenticated, registered or sealed such bonds and interest coupons had not ceased to be such officers.

Pending the execution and delivery of definitive bonds, there may be executed and delivered to the purchaser or purchasers of such bonds, from time to time, a temporary bond or bonds, in printed or typewritten form, which upon the execution of said definitive bonds shall be exchangeable, without charge therefor, for definitive bonds of like principal aggregate amount, date, tenor, interest rate and

maturity when ready for delivery. If the district shall issue temporary bonds in any denomination other than one thousand dollars, prior to the delivery of the definitive bonds, the holder of any temporary bond or bonds may surrender the same and the district shall deliver in exchange therefor a temporary bond or bonds of like principal amount, date, tenor, interest rate and maturity, of the denomination of one thousand dollars or multiples thereof as said holder may request. Said temporary bond or bonds shall be numbered from T1 upward, corresponding to the numbers of the definitive bonds for which such temporary bonds are exchangeable if exchangeable for specified definitive bonds by the terms of such temporary bonds, shall be signed by the president and attested by the secretary of the commission and the official seal of the district shall be affixed thereto. Temporary bonds shall be in substantially the same form as the definitive bonds, except as follows:

(a) The following phrase shall be inserted in the caption of each of said temporary bonds:

"TEMPORARY BOND (EXCHANGEABLE FOR DEFINITIVE BOND(S) WHEN PREPARED AND READY FOR DELIVERY)."

(b) Temporary bonds shall contain a provision substantially as follows:

This bond is a temporary bond issued pending the preparation of definitive bonds and is exchangeable for a definitive bond (or definitive bonds) of the district of like tenor and denomination (aggregate principal amount) and of like date, interest rate, and maturity as this bond and bearing the number(s) contained in the number of this bond. Such exchange shall be made at the office of either of the paying agents of the district at any time after the execution of definitive bonds. In the event this bond is registered as to principal, such exchange shall be made only upon the written request of the registered owner or his attorney duly authorized.

(c) At the option of the district any unregistered temporary bond or bonds may be issued without interest coupons or with interest coupons attached thereto for the interest accruing upon one or more interest payment dates next following the date of their execution. In the event a temporary bond or bonds are issued without interest coupons, no reference shall be made therein to coupons, and such temporary bonds shall be registerable as to principal only.

Such additional modifications and amendments may be made to the form of the temporary bonds as may be required in order that the temporary bonds shall properly express the character of the obligation, and such further provisions may be added as may be deemed necessary to conform the temporary bonds to the conditions under which they may be exchanged for definitive bonds.

In case any temporary or definitive bond or any coupons thereto appertaining shall at any time become mutilated or be lost or destroyed, the district in its discretion, may execute and deliver a new bond, temporary bond, or coupons of like tenor and effect in exchange or substitution for and upon the surrender and cancellation of such mutilated bond or temporary bond or coupons appertaining thereto; or in lieu of or in substitution for such destroyed or lost bond, temporary bond, or coupons, or if such lost bond, temporary bond, or coupons shall have matured, instead of issuing a substitute therefor, the district may at its option pay the same without the surrender thereof. In any event the applicant for the issuance of a substitute bond, temporary bond, or coupons shall furnish to the district evidence satisfactory to it of the destruction or loss of the original bond, temporary bond, or coupons, and of the ownership thereof, and also such security and indemnity as may be required by the district, and no such substitute bond, temporary bond, or coupons shall be issued unless the applicant for the issuance thereof shall reimburse the district for the expenses incurred by the district in connection with the preparation, execution, issuance, and delivery of the substitute bond, temporary bond, or coupons, and any such substitute bond, temporary bond, or coupons shall be equally and proportionately entitled to the security of this resolution with all other bonds and coupons issued hereunder. The district shall advise the paying agents of the issuance of substitute bonds, temporary bonds, or coupons.

SEC. 9. There is hereby created a special fund to be known as the Rock Island hydroelectric production system revenue fund (hereinafter referred to as the "revenue fund"). Upon and after the issuance of any bonds pursuant to this resolution, the district covenants and agrees that it will pay into said revenue fund all income, revenues, receipts, and profits derived by the district through the ownership and operation by it of the production system, together with the proceeds received by the district directly or indirectly from the sale, lease, or other disposition of any of the properties or facilities of the production system,

and further covenants and agrees that all of such moneys shall be trust funds in the hands of the district for the purpose of operating and maintaining the production system and paying all costs, charges, and expenses in connection therewith and for the purpose of making repairs, renewals, and replacements to said production system and constructing additions and extensions thereto and betterments thereof, and for the purpose of paying the principal of and premium, if any, and interest on the bonds, and all other charges or obligations against said revenues, income, receipts, and profits of whatsoever nature now or hereafter imposed thereon by law or contract.

SEC. 10. There is also hereby created a special fund to be known as the Rock Island hydroelectric system electric revenue bonds, series of 1951, bond fund (hereinafter referred to as the "bond fund"), which shall be used solely for the purpose of paying the principal of and premium, if any, and interest on the bonds, and of retiring such bonds prior to maturity in the manner herein provided. The district hereby obligates and binds itself irrevocably to set aside and pay into the bond fund out of the gross revenues of the production system paid into the revenue fund certain fixed amounts without regard to any fixed proportion of said gross revenues sufficient to pay the principal of and premium, if any, and interest on all the bonds from time to time outstanding, pursuant to this resolution, as the same respectively fall due and become payable. Such fixed amounts to be paid into the bond fund shall be as follows:

A. There is hereby created an interest account in the bond fund, and not later than the twenty-fifth day of the month of May 1951, and on or before the twenty-fifth day of each calendar month next succeeding, the district shall pay into the bond fund to the credit of the interest account an amount such that if the same amount were so set aside and credited to said account on the twenty-fifth day of each succeeding calendar month thereafter prior to the next date upon which an installment of interest falls due on the bonds, the aggregate of the amounts so set aside and credited to the interest account will on such date be equal to the installment of interest then falling due.

B. There is hereby created a principal account in the bond fund, and, beginning with the twenty-fifth day of the month of July 1954, and on or before the twenty-fifth day of each calendar month next succeeding, the district shall pay into the bond fund to the credit of the principal account an amount such that if the same amount were so set aside and credited to said account on the twenty-fifth day of each succeeding calendar month thereafter prior to the next date upon which an installment of principal falls due on the bonds, the aggregate of the amounts so set aside and credited to the principal account will on such date be equal to the installment of principal then falling due.

C. There is hereby created a sinking fund account in the bond fund, and beginning with the twenty-fifth day of July 1991, and on or before the twenty-fifth day of each calendar month next succeeding, the district shall pay into the bond fund to the credit of the sinking fund account, an amount such that if the same amount were so set aside and credited to said account on the twenty-fifth day of each succeeding calendar month thereafter, the aggregate of the amounts so set aside and credited to the sinking fund account will, on each date set forth in the table below, be equal to one hundred and one per centum of the amount obtained by multiplying the total amount of bonds maturing July 1, 2005, issued from time to time pursuant to this resolution, by the percentage set opposite each such date, to wit:

Date	*Percentage*
July 1, 1992	5.7889
July 1, 1993	5.9832
July 1, 1994	6.1910
July 1, 1995	6.4121
July 1, 1996	6.6332
July 1, 1997	6.8610
July 1, 1998	7.1022
July 1, 1999	7.3434
July 1, 2000	7.5980
July 1, 2001	7.8660
July 1, 2002	8.1340
July 1, 2003	8.4221
July 1, 2004	8.7102
July 1, 2005	6.9548

The district shall, by the end of each twelve months' period beginning with the twelve months' period ending July 1, 1992, apply substantially all moneys in the sinking fund account to the retirement of bonds by purchase or redemption at prices not exceeding the current redemption price.

Moneys in the bond fund credited to the interest account and to the principal account shall be transmitted to the paying agents for the bonds not less than five days prior o the date upon which any interest or principal is due and in amounts sufficient to meet such maturing installments of principal and interest; and moneys in the bond fund credited to the interest account and to the sinking fund account shall be transmitted to the paying agents at least five days prior to the date fixed for the redemption of any bonds in amounts sufficient to pay such bonds so called, together with the interest and the redemption premium thereto. In the event that there shall be at any time any deficiency in the bond fund, the district shall make up any such deficiency from the Rock Island Reserve and Contingency Fund (hereinafter created) by the withdrawal of cash therefrom for that purpose, and by the sale or redemption of United States Government bonds, if necessary, in such amount as will provide cash in said fund sufficient to make up any such deficiency. Whenever the assets of the bond fund shall be sufficient to provide money to pay all bonds then outstanding, including such interest as may thereafter become due thereon and any premiums upon redemption, no further payments need be made into the bond fund.

The bond fund shall be drawn upon for the sole purpose of paying the principal of and interest on the bonds. Moneys set aside from time to time with the paying agents for said bonds and the interest thereon shall be held in trust for the holders of the bonds and appurtenant coupons in respect of which the same shall have been so set aside. Until so set aside for the payment of an installment of principal or interest, as aforesaid, all moneys in the bond fund shall be held in trust for the benefit of the holders of all bonds at the time outstanding, equally and ratably and without preference or distinction as between bonds of different installments or maturities.

SEC. 11. The bonds and the interest thereon shall be a valid claim of the holder thereof only against the bond fund and the amount of the revenues of the production system of the district pledged to the bond fund, and shall constitute a prior charge over all other charges or claims whatsoever against the bond fund, and the commission hereby finds and determines that in creating the bond fund, due regard has been given to the cost of the operation and maintenance of the production system, and that it has not obligated the district to set aside into the bond fund a greater amount of the revenues and proceeds of the production system than in its judgment will be available over and above such cost of maintenance and operation.

SEC. 12. There is also hereby created a special fund to be known as the Rock Island Reserve and Contingency Fund (hereinafter referred to as the reserve fund). After making the payments into the bond fund hereinabove provided for and paying or making provision for the payment of the ordinary cost of operating and maintaining the production system and the obligations issued to pay part of the compensation to the fiscal agent for services in connection with the acquisition of the production system, the district shall (1) after the district begins operating the production system and until July 1, 1955, pay into the reserve fund all excess revenues after satisfaction of the payments specified above, and (2) beginning with the month of July 1955, pay monthly into the reserve fund an amount equal to one-twelfth of 35 per centum of the maximum amount required to be paid during any full fiscal year thereafter from the revenue fund into the bond fund, and amounts required to be paid into any similar special funds for the payment of additional bonds payable from the revenue fund. Moneys in the reserve fund may, at the option of the district, be invested and reinvested in, and obligations deposited in the reserve fund shall be, direct obligations of the United States Government (hereinafter sometimes referred to as Government bonds) maturing within 15 years from the date of such investment (but maturing prior to the final maturity of the bonds) or in such direct obligations of the United States Government as may be redeemable by their terms at the option of the holder thereof at stated prices and stated times, at least annually. All moneys earned as a result of any such investment and reinvestment shall accrue to and be deposited in the reserve fund. Moneys in the reserve fund shall be used for the purpose of making up from time to time any deficiency in the bond fund and may be used from time to time for any one or more of the following purposes, to wit: (1) to pay the cost of renewals to and replacements of the production system, (2) to pay the cost of improvements to and extensions of the production system,

and (3) to pay extraordinary operation and maintenance costs thereof; provided (a) that moneys and value of Government bonds in the reserve fund in excess of $2,275,000 shall be withdrawn at least annually for the purchase or redemption of bonds, (b) that at any time when the moneys, including the value of Government bonds, in the reserve fund shall be sufficient to pay principal, interest, and redemption premium on all bonds then outstanding and leave a balance of $675,000 in the reserve fund, said moneys shall be so applied, and (c) that any expenditures when in excess of $125,000 in any year for the purposes provided in clauses (1), (2), and (3) above shall be made only when approved in writing by the consulting engineer (hereinafter defined).

SEC. 13. The district covenants and agrees with the purchasers and holders of the bonds, from time to time, as follows:

A. Beginning July 1, 1955, and continuing thereafter for so long as any of the bonds are outstanding and unpaid, the district will take from the production system all of the power and energy requirements of the district for the customers of its production system and its electric system, and may so take from the production system the power and energy requirements of the customers of any other electric utility properties purchased, constructed or otherwise acquired by the district, and will pay into the revenue fund amounts of money from time to time in payment for the power and energy taken from the production system as aforesaid which will be sufficient, together with other revenues paid into the revenue fund, to provide all costs of maintaining and operating the production system, payment and redemption of the principal of and interest on the bonds, and all other obligations payable from the revenue fund and to transfer during each year to the reserve fund an amount equal to 35 per centum of the maximum amount required to be paid during any full fiscal year thereafter from the revenue fund into the bond fund, and amounts required to be paid into any similar special fund for the payment of additional bonds payable from the revenue fund. The district further covenants and agrees that subject to the covenants contained in Resolution No. 73 for the benefit and security of the 1948 bonds and any additional bonds ranking pari passu therewith, it will pay into the bond fund from the revenues of the electric system such amounts as may be required to make up any deficiency that may exist from time to time in the bond fund for which provision has not otherwise been made.

B. The district shall establish, maintain and collect rates and charges for electric energy and other services, facilities and commodities sold, furnished or supplied through the facilities of the production system which shall be fair and nondiscriminatory and adequate to provide the district with revenues sufficient for the payment of the principal of and interest on the bonds and all payments which the district is obligated to set aside in the bond fund, the reserve fund, and for the proper operation and maintenance of the production system, and all necessary repairs, replacements and renewals thereof, and for the payment of any and all amounts which the district may now or hereafter become obligated to pay or set aside from said revenues by law or contract.

C. The district will not hereafter create any other special fund or funds for the payment of revenue bonds, warrants or other obligations, or issue, any such obligations or create any additional indebtedness, which will rank on a parity with or in priority over the payments into the bond fund herein created and established, except that the district reserves the right to incur additional indebtedness and issue additional revenue bonds therefor, and to create special funds for the payment thereof into which payments may be made from the revenue fund of fixed amounts sufficient to pay the principal of and interest on such additional bonds and to maintain an adequate reserve therefor, the payments into which special funds may rank equally with the payments into the bond fund herein created, provided:

1. That the proceeds of such bonds may be used only for the purpose of paying or reimbursing the district for costs in connection with the construction of the facilities herein authorized as a part of the initial facilities of the production system; and

2. That there is at the time of the issuance of such additional bonds no deficiency in the bond fund.

Anything herein to the contrary notwithstanding, the district may issue bonds, the payment of which is a lien on the revenue fund on a parity with the payments herein provided to be made in the bond fund for the purpose of refunding at any time within one year prior to maturity any of the then outstanding bonds for the payment of which insufficient funds are available.

Nothing herein contained shall prevent the district from issuing revenue bonds or warrants which are a charge upon all or any portion of the revenues of the district from the operation of the production system junior or inferior to the payments to be made into the bond fund and the reserve fund created hereunder; provided, however, that provision for payment of the obligations issued to pay the compensation of the fiscal agent for services in connection with the acquisition of the production system shall have priority over the payments to be made into the reserve fund.

D. The district will not voluntarily alter, amend, modify, or rescind the terms of that certain lease agreement entered into by and between the district and the Puget Sound Power & Light Company dated April 26, 1951, in any manner so as to materially adversely affect the security of the bonds, but will at all times keep said lease agreement in full force and effect, and will at all times maintain, preserve, and keep, or cause to be maintained, preserved, and kept, the properties of the production system and all additions and betterments thereto and extensions thereof and every part and parcel thereof, in good repair, working order, and condition, and will from time to time make, or cause to be made, all necessary and proper repairs, renewals, replacements, extensions, and betterments thereto, so that at all times the business carried on in connection therewith shall be properly and advantageously conducted, and the district will at all times operate such properties and the business in connection therewith in an efficient manner and at reasonable cost; provided, however, that nothing contained in this resolution shall be construed as affecting the right of the district to condemn the property and property and water rights of the Puget Sound Power & Light Company covered by said lease agreement and such other property of said company as the district may from time to time be authorized by law to condemn.

E. The district will not sell, lease, or otherwise dispose of any of the production system properties, or permit the sale, lease, or other disposition thereof, except as hereinafter provided in this subsection E.

1. The district may sell, lease, or otherwise dispose of the production system properties provided simultaneously with such sale or other disposition thereof provision is made for the payment of cash into the bond fund sufficient to pay the principal of and interest on all bonds then outstanding and the premium upon the retirement thereof, if any, in full accordance with the requirements of this resolution.

2. The district may sell, lease or otherwise dispose of any portion of the works, plants and facilities of the production system and real and personal property comprising a part thereof which shall have become unserviceable, inadequate, obsolete, worn out or unfit to be used in the operation of the production system. Moneys received by the district as the proceeds of any such sale, lease or other disposition of any portion of the properties of the production system shall be transferred to the reserve fund.

F. The district will keep, or cause to be kept, the works, plants, and facilities comprising the properties of the production system insured, and will carry, or cause to be carried such other insurance with responsible insurers with policies payable to the district against risks, accidents, or casualties at least to the extent that similar insurance is usually carried by private utility corporations operating like properties. In the event of any loss or damage to the properties of the production system covered by insurance, the district will transfer the proceeds received by the district of any insurance policy or policies covering such damage or loss to the reserve fund.

G. Within sixty days after the close of each fiscal year beginning with the fiscal year ending on December 31, 1951, the district shall file, or cause to be filed, with the paying agents for the bonds a certicate of the consulting engineer describing in reasonable detail the insurance then in effect pursuant to the requirements of paragraph F and all reserves therefor, and stating that such insurance and reserves therefor comply in all respects with such requirements.

H. The district shall cause proper books of account to be kept for the district, showing as a separate utility system the accounts of the production system and in accordance with the rules and regulations prescribed by any governmental agency authorized to prescribe such rules, including the Division of Municipal Corporations of the State Auditor's Office of the State of Washington, or other State department or agency succeeding to such duties of the State auditor's office, and in accordance with the uniform system of accounts prescribed by the Federal Power Commission or other Federal agency having jurisdiction over electric public utility companies owning and operating properties similar to the electric properties operated by the district, whether or not the district

is required by law to use such system of accounts. The district shall cause such books of accounts to be audited by the State auditor's office or other State agency as may be authorized and directed by law to make such audits and also by independent certified public accountants. In keeping said books of account, the district agrees that depreciation shall be accrued monthly on the depreciable properties of the production system in accordance with the accounting practice prescribed by the uniform system of accounts of the Federal Power Commission above mentioned. Any holder of bonds may obtain, at the principal office of the district, and, upon request to such office, will be sent, copies of the balance sheet and income and expense statement showing in reasonable detail the financial condition of the production system as of the close of each fiscal year, and the income and expenses for such year, including the amounts paid into the revenue fund, the bond fund, and any and all special funds and accounts created pursuant to the provisions of this resolution, and the amounts expended for maintenance and for renewals, replacements and other gross capital additions to the properties of the production system.

(i) So long as any bonds are outstanding and unpaid, the district will not furnish or supply electric energy or any other commodity, service, or facility furnished by or in connection with the operation of the production system, free of charge to the electric system of the district or any person, firm, or corporation, public or private, and the district will promptly enforce the payment of any and all accounts owing to the district and delinquent, by discontinuing service, or by legal suits, actions, or proceedings, or by both.

(j) The district will, as long as any of the bonds are outstanding, retain a nationally recognized independent consulting engineer or engineering firm on a continuous basis for the purpose of providing the district immediate and continuous engineering counsel in the operation of the production system (the consulting engineer employed pursuant to this paragraph being referred to in this resolution as the "consulting engineer"). Any consulting engineer employed pursuant to this paragraph (j) shall be selected with special reference to his knowledge and experience in the construction and operation of electric utility systems, and may be the same consulting engineer employed by the district pursuant to the provisions of Resolution No. 73 of the district. The district covenants and agrees that upon the issuance of any bonds pursuant to this resolution it will employ R. W. Beck & Associates as consulting engineer for a period of five years and may thereafter renew such employment for additional five-year periods, or may employ other consulting engineers for five-year periods. In addition to the other duties of the consulting engineer under this resolution, the consulting engineer shall prepare, not later than one hundred and twenty days after the close of the fiscal year ending December 31, 1952, and thereafter at least once during each succeeding three-year period, a report based upon a survey of the production system, the management of its business and the operation and maintenance of its properties. Each such report shall be in sufficient detail to show whether the district, in operating the production system, has satisfactorily performed and complied with the covenants set forth in this resolution with respect to the efficient management of the properties of the production system and its business, the sufficiency of the rates charged for services under the requirements of this resolution, the proper maintenance of the properties of the production system and the making of necessary repairs, renewals, and replacements thereto and thereof, the adequacy of power supply, the equitableness of contracts and rates in connection with power supply, the necessity for capital replacements and improvements, and recommendations therefor. If the district shall have in any material way failed to perform or comply with the covenants and agreements contained in this resolution, such report shall specify the details of such failure. In the making of such report the consulting engineer shall accept the certified statements of the State auditor's office or other State department or agency or of independent certified public accountants referred to in paragraph (h) of this section 13. Copies of each such report shall be placed on file with the paying agents for the bonds, and with the district at its office in the city of Wenatchee, Washington, and shall be sent to any holder of bonds requesting a copy thereof.

The consulting engineer shall pass upon the economic soundness and the feasibility of all contemplated extensions, betterments, and additions, involving the expenditure of $50,000 or more, to the production system, and he shall embody his findings in a certificate to be filed with the district in the city of Wenatchee, Wash. Such certificate shall specify the source from which funds are to be derived for such expenditure and shall designate the expenditure as a renewal, replacement or other capital addition.

In the event of any loss or damage to the properties of the production system in excess of $50,000, whether or not covered by insurance, the consulting engineer shall ascertain the amount of such loss or damage and shall issue and deliver to the district a certificate setting forth such loss or damage and recommendations as to whether or not such loss or damage should be replaced.

(k) The district will not expend any of the revenues derived by it from the operation of the production system or the proceeds of additional bonds or other obligations for any extensions, betterments and improvements to the production system which are not economically sound, and which will not properly and advantageously contribute to the conduct of the business of the production system in an efficient and economical manner.

(l) The district will duly and punctually pay or cause to be paid, but only from the bond fund and from the proceeds of the sales of property of the production system, the principal of and premium, if any, and interest on each and every bond on the dates and at the places and in the manner provided in the bonds and in the coupons thereto attached, according to the true intent and meaning thereof, and will faithfully do and perform and fully observe and keep any and all covenants, undertakings, stipulations, and provisions contained in the bonds and coupons, and in this resolution.

(m) The district will, from time to time, duly pay and discharge, or cause to be paid and discharged, all taxes, assessments, and other governmental charges, or payments in lieu thereof, lawfully imposed upon the properties constituting the production system or the revenues, income, receipts, and profits derived by the district therefrom when the same shall become due, as well as all lawful claims for labor and material and supplies which, if not paid, might become a lien or charge upon the said properties, or any part thereof, or upon the revenues derived by the district from the operation thereof, or which might in any way impair the security of the bonds, except assessments, charges, or claims which the district shall in good faith contest by proper legal proceedings.

(n) The district will, at any and all times, insofar as it may be authorized so to do by law, pass, make, do, execute, acknowledge, and deliver all and every such further resolutions, acts, deeds, conveyances, assignments, transfers, and assurances as may be necessary or desirable for the better assuring, conveying, granting, assigning, and confirming all and singular the rights, revenues, and other funds hereby pledged or assigned to the payment of the bonds and appurtenant coupons, or intended so to be, or which the district may hereafter become bound to pledge or assign.

SEC. 14. The commissioners of the district hereby find and determine that the continuous operation of the production system and the collection, deposit and disbursement of the revenues therefrom in the manner provided in this resolution, is essential to the payment and security of the bonds, and the failure or refusal of the district to perform the covenants and obligations of this resolution will endanger the necessary continuous operation of the production system and application of the revenues therefrom to the purposes set forth in this resolution. Accordingly, the district hereby further covenants and agrees with the purchasers and holders from time to time of the bonds, in order to protect and safeguard the covenants and obligations issued by the district securing the bonds, that if one or more of the following events (hereinafter called events of default) shall happen, i. e.:

(a) The district shall fail to make, or cause to be made, payment of the principal of any bonds when the same shall be or become due and payable.

(b) The district shall fail to make, or cause to be made, payment of any installment of interest on any bonds when the same shall become due and payable and such failure shall have continued for a period of thirty days.

(c) The district shall default in the performance of any obligation with respect to payment to the revenue fund or the bond fund, and such default shall have continued for a period of thirty days.

(d) The district shall fail to establish, maintain and collect, or cause to be established, maintained and collected, rates and charges as required by paragraph B of section 13 hereof.

(e) The district shall default in the observance or performance of any other of the covenants, conditions, and agreements on the part of the district contained in this resolution and such default shall have continued for a period of thirty days.

(f) The district shall (except as herein permitted) sell, transfer, assign, or convey any properties constituting the production system or interests therein, or any part or parts thereof, or shall make any agreement for such sale or

transfer or shall voluntarily forfeit or allow any of the franchises, permits, privileges, easements or rights-of-way necessary or desirable in the operation of the production system to lapse or terminate prior to the expiration date thereof by neglect or default.

(g) An order, judgment, or decree shall be entered by any court of competent jurisdiction, (1) appointing a receiver, trustee or liquidator for the district or the whole or any substantial part of the production system, (2) approving a petition filed against the district under the provisions of chapter IX of an act to establish a uniform system of bankruptcy throughout the United States, approved July 1, 1898, as amended, (3) granting relief to the district under any amendment to said Bankruptcy Act which shall give relief substantially similar to that afforded by said chapter IX, or (4) assuming custody or control of the district or of the whole or any substantial part of the production system under the provision of any other law for the relief or aid of debtors; and such order, judgment, or decree shall not be vacated or set aside or stayed (or, in case custody or control is assumed by said order, such custody or control shall not be otherwise terminated), within sixty days from the date of the entry of such order, judgment, or decree.

(h) The district shall (1) admit in writing its inability to pay its debts generally as they become due, (2) file a petition in bankruptcy, (3) make an assignment for the benefit of its creditors, (4) consent to the appointment of a receiver of the whole or any substantial part of the production system, (5) on a petition in bankruptcy filed against the district same shall be adjudicated a bankrupt, (6) file a petition under the provisions of said chapter IX, (7) file a petition or an answer seeking relief under any amendment to said Bankruptcy Act which shall give relief substantially similar to that afforded by said chapter IX, or (8) consent to the assumption by any court of competent jurisdiction under the provisions of any other law for the relief or aid of debtors of custody or control of the district or of the whole or any substantial part of the production system; then a bondholders' committee (hereinafter called the bondholders' committee), or the holders of twenty per centum in principal amount of the bonds of the district then outstanding, may by notice in writing delivered to the district declare the principal of all the bonds then outstanding and the interest accrued thereon immediately due and payable, and such principal and interest shall thereupon become and be immediately due and payable; subject, however, to the right hereby given the bondholders' committee by written notice to the district to annul such declaration at any time before possession of the properties of the production system (or any part thereof) is taken hereunder, if, before any such possession is taken, all covenants with respect to which default shall have been made shall be fully performed and all arrears of interest upon all the bonds then outstanding and the reasonable expenses and charges of the bondholders' committee and their respective agents and attorneys and all other indebtedness payable pursuant to said bonds and this resolution, except the principal or redemption price of any such bonds not then due by their terms and interest accrued on said bonds since the last interest payment date, shall be paid or the amount thereof shall be paid to the paying agents for said bonds for the benefit of those entitled thereto.

In each and every such case, during the continuance of such event of default, the holders of twenty per centum in principal amount of the bonds then outstanding, may call a bondholders' meeting for the purpose of electing a bondholders' committee. Such meeting shall be called, and proceedings thereat shall be conducted in the manner provided in sections 23 to 30, inclusive, hereof.

SEC. 15. At such meeting the bondholders present in person or by proxy may, by a majority of the votes cast, elect one or more persons, who may or may not be bondholders, to the bondholders' committee which shall act as trustee for all bondholders, and the bondholders' committee as such trustee may have and exercise all the rights and powers provided for in this resolution to be exercised by the bondholders' committee. The bondholders present in person or by proxy at said meeting, or at any adjourned meeting thereof, shall prescribe the manner in which the successors of the persons elected to the bondholders' committee at such bondholders' meeting shall be elected or appointed, and may prescribe rules and regulations governing the exercise by the bondholders' committee of the powers conferred upon it herein, and may provide for the termination of the existence of the bondholders' committee. The members of the bondholders' committee elected by the bondholders in the manner herein provided, and their successors, as a committee are hereby declared to be trustees for the holders of all the bonds then outstanding, and are empowered to exercise in the name of

the bondholders' committee as trustee, all the rights and powers hereinafter conferred on the bondholders' committee.

SEC. 16. The bondholders committee may, as trustee, have such rights to take possession and control of the business and property of the production system, or any part thereof, as the district may then have, and proceed to operate the same, to prescribe rates and charges in the same way and manner as the district might do, and to collect and receive the income thereof, including all tolls, rents, revenues, issues, income, receipts, and profits derived, received, or had thereof or therefrom, to the same extent as the district shall then be entitled thereto, and after paying all necessary and proper operating expenses and all other proper disbursements or liabilities made or incurred by the bondholders committee, apply directly or through the paying agents the surplus of the revenues so received, first, to the payment of all arrears of interest on the bonds, and, second, after the payment of interest as aforesaid, to the payment of the principal of the bonds which by the terms thereof shall be due and payable. Whenever all proper charges and all arrears of interest and all bonds which by the terms thereof are due and payable have been paid in full, the bondholders committee shall relinquish any such possession and control to the district.

SEC. 17. The bondholders committee may upon the happening of an event of default, and during the continuance thereof, take such needful steps and institute such suits, actions or other proceedings as the bondholders committee may deem appropriate for the protection and enforcement of the rights of bondholders, or to obtain other appropriate relief, and may enforce the specific performance of any covenant, agreement, or condition contained in this resolution or in the bonds.

SEC. 18. Any action, suit or other proceeding instituted by the bondholders committee hereunder shall be brought in its name as trustee for the bondholders, and all such rights of action upon or under any of the bonds or the provisions of this resolution may be enforced by the bondholders committee without the possession of any of the bonds, and without the production of the same at any trial or proceedings relative thereto except where otherwise required by law, and the respective holders of bonds, by taking and holding the same, shall be conclusively deemed irrevocably to appoint the bondholders committee the true and lawful trustee of the respective holders of said bonds, with authority to institute any such action, suit, or proceeding; to receive as trustee and deposit in a bank or trust company in trust any sums becoming distributable on account of said bonds; to execute any paper or documents for the receipt of such moneys, and to do all acts with respect thereto that the bondholder himself might have done in person; provided, however, that anything herein contained shall not be deemed to authorize or empower the bondholders committee to consent to or accept or adopt, on behalf of any holder of bonds, or appurtenant coupons, any plan of reorganization or adjustment affecting the said bonds of the district or any right of any holder thereof, or to authorize or empower the bondholders committee to vote the claims of the holders thereof in any receivership, insolvency, liquidation, bankruptcy, reorganization, or other proceeding to which the district shall be a party; and provided further, however, that any bondholder or bondholders may by mutual agreement transfer title to the bonds held by him or them to the bondholders committee, or may by agreement with other bondholders create or organize a separate trustee or bondholders' committee and may confer upon the bondholders committee or such separate trustee or bondholders' committee, such powers and duties as such agreement or agreements shall provide, and the provisions of this resolution shall not be construed as a limitation on the powers and duties which consenting bondholders may by agreement confer on the bondholders committee or such separate trustee or bondholders' committee. The bondholders committee shall have full power of substitution and delegation in respect to any of the powers hereby granted.

SEC. 19. No holder of any one or more of the bonds shall have any right to institute any action, suit, or proceeding at law or in equity for the enforcement of same or coupons pertaining thereto, unless an event of default shall have happened and be continuing, and unless no bondholders committee has been created as herein provided, but any remedy herein authorized to be exercised by the bondholders committee may be exercised individually by any bondholder, in his own name and on his own behalf or for the benefit of all bondholders, in the event no bondholders committee has been created, or with the consent of the bondholders committee, if such bondholders committee has been created: *Provided, however,* That nothing in this resolution or in any bond shall affect or impair the obligation of the district, which is absolute and unconditional, to pay the principal of and interest on the bonds to the respective holders thereof

and the coupons pertaining thereto, at the respective due dates therein specified or affect or impair the right of action, which is also absolute and unconditional, of such holders to enforce such payment.

SEC. 20. The remedies herein conferred upon or reserved to the holders of bonds of the district and to the bondholders committee are not intended to be exclusive of any other remedy or remedies, and each and every such remedy shall be cumulative and shall be in addition to every other remedy given hereunder or now or hereafter existing at law or in equity or by statute. The privileges herein granted shall be exercised from time to time and continued so long and as often as the occasion therefor may arise and no waiver of any default hereunder, whether by the bondholders committee or by the holders of said bonds, shall extend to or shall affect any subsequent default or shall impair any rights or remedies consequent thereon. No delay or omission of the bondholders or of the bondholders committee to exercise any right or power accruing upon any default shall impair any such right or power or shall be construed to be a waiver of any such default or an acquiescence therein.

SEC. 21. The district will not at any time insist upon or plead, or in any manner whatsoever claim or take the benefit or advantage of any stay or extension law now or at any time hereafter in force which may affect the covenants and agreements contained in this resolution or in the bonds, but all benefit or advantage of any such law or laws is hereby expressly waived by the district.

SEC. 22. Any provision in this resolution for the mailing of a notice or other paper to bondholders shall be fully complied with if it is mailed postage prepaid, (*a*) to each registered owner of any of the bonds then outstanding at his address, if any, appearing upon the registry books of the district, and (*b*) to each owner of any of such bonds payable to bearer who shall have filed with the district an address for notices. Any provision hereinafter in this resolution contained for publication of a notice or other matter, shall require the publication thereof in the Daily Bond Buyer, in the city of New York, State of New York (or in lieu of publication in the Daily Bond Buyer in a daily newspaper printed in the English language and customarily published on each business day and of general circulation in the Borough of Manhattan, the city of New York, State of New York), and also in a daily newspaper printed in the English language and customarily published on each business day and of general circulation in the city of Chicago, State of Illinois.

SEC. 23. The district, the bondholders committee, or the holders of at least 20 per centum in principal amount of the bonds then outstanding may at any time call a meeting of the holders of said bonds. Every such meeting shall be held at such place in the city of New York, State of New York, or in the city of Chicago, State of Illinois, as may be specified in the notice calling such meeting. Written notice of such meeting, stating the place and time of the meeting and in general terms the business to be submitted, shall be mailed to the bondholders by the district, the bondholders committee or the bondholders calling such meeting not less than thirty nor more than forty-five days before such meeting, and shall be published at least once a week for four successive calendar weeks on any day of the week, the date of first publication to be not less than thirty nor more than forty-five days preceding the meeting: *Provided, however,* That the mailing of such notice shall in no case be a condition precedent to the validity of any action taken at any such meeting. The expenses of publication of such notice shall be paid or reimbursed by the district. Any meeting of bondholders shall, however, be valid without notice if the holders of all bonds then outstanding are present in person or by proxy or if notice is waived before or within thirty days after the meeting by those not so present.

SEC. 24. Attendance and voting by bondholders at such meetings may be in person or by proxy. Owners of registered bonds may, by an instrument in writing under their hands, appoint any person or persons, with full power of substitution, as their proxy to vote at any meeting for them.

In order that holders of bonds payable to bearer and their proxies may attend and vote without producing their bonds, the district may make, and from time to time vary, such regulations as it shall think proper for the deposit of bonds with, or exhibit of bonds to, any banks, bankers, or trust companies, wherever situated, and for the issue by them, to the persons depositing or exhibiting such bonds, of certificates in form approved by the district which shall constitute proof of ownership entitling the holders thereof to be present and vote at any such meeting and to appoint proxies to represent them and vote for them at any such meeting in the same way as if the persons so present and voting, either

personally or by proxy, were the actual bearers of the bonds in respect of which such certificates shall have been issued, and any regulations so made shall be binding and effective. Copies of such regulations shall be kept on file by the paying agents. Officers or nominees of the district and the bondholders committee, if any, may be present or represented at such meeting and take part therein, but shall not be entitled to vote thereat, except as such officers or nominees or members of the bondholders committee are bondholders or proxies for bondholders.

Any registered owner of bonds and any holder of a certificate provided for in this section shall be entitled in person or by proxy to attend and vote at such meeting as holder of the bonds registered or certified in his name, without producing such bonds (unless the bonds described in such certificate shall be registered in the name of, or be produced by, some other person at such meeting), and such persons and their proxies shall, if required produce such proof of personal identity as shall be satisfactory to the district. All proxies presented at such meeting shall be delivered to the inspectors of votes and filed with the trustees. All other persons seeking to attend or vote at such meeting must produce the bonds claimed to be owned or represented at such meeting.

The vote at any such meeting of the holder of any bond entitled to vote thereat shall be binding upon such holder and upon every subsequent holder of such bond (whether or not such subsequent holder has notice thereof).

SEC. 25. At such meeting the holders of a majority in principal amount of the bonds represented at the meeting in person or by proxy may elect a temporary chairman and temporary secretary, who shall officiate at the meeting until a permanent chairman and secretary shall have been elected by a similar vote. The permanent chairman of the meeting shall appoint two inspectors of votes who shall count all votes cast at such meeting, except votes on the election of chairman and secretary as aforesaid, and who shall make and file with the secretary of the meeting their verified report in duplicate of all such votes cast at the meeting.

SEC. 26. The holders of not less than the principal amount of the bonds required for any action to be taken at such meeting must be present at such meeting in person or by proxy in order to constitute a quorum for the transaction of business, less than a quorum, however, having power to adjourn from time to time without any other notice than the announcement thereof at the meeting: *Provided, however,* That if such meeting is adjourned by less than a quorum for more than ten days, notice thereof shall be published at least five days prior to the adjourned date of the meeting.

SEC. 27. Any amendment of the provisions of this resolution in any particular may be made by resolution of the district as hereinafter specified when approved as hereinafter provided in section 28 hereof by resolution duly adopted by the affirmative vote at a meeting of bondholders duly convened and held, or with written consent given as hereinafter provided in section 29 hereof, of the holders of at least 75 per centum in principal amount of the bonds outstanding when such meeting is held or such consent is given, and of the holders of at least 75 per centum in principal amount of bonds so outstanding which are adversely affected by any amendment which does not equally affect all other bonds so outstanding: *Provided, however,* That no such amendment shall permit a change in the date of payment of the principal of any bonds or of any installment of interest thereon or a reduction in the principal or redemption price thereof or the rate of interest thereon, without the consent of the holder of each such bond.

SEC. 28. The district may at any time adopt a resolution amending the provisions of this resolution to the extent that such amendment is permitted by the provisions of section 27 of this resolution, to take effect when and as provided in this section. At any time thereafter such resolution may be submitted by the district for approval to a meeting of the bondholders duly convened and held in accordance with the provisions of this resolution. A record of the proceedings of each meeting of the bondholders shall be prepared by the permanent secretary of the meeting and shall have attached thereto the original reports of the inspectors of votes and affidavits by a person or persons having knowledge of the facts, showing a copy of the notice of the meeting and setting forth the facts with respect to the mailing and publication thereof under the provisions of this resolution. Such a record shall be signed and certified by the affidavits of the permanent chairman and the permanent secretary of the meeting. Any records so signed and verified shall be proof of the matters therein stated. If the resolution of the district asking such amendment shall be approved by a resolution duly adopted at such meeting of bondholders by the affirmative vote of

the holders of the required percentages of bonds, a notice stating that a resolution approving such amendment has been so adopted and briefly summarizing such amendment shall be mailed by the district to the bondholders (but failure so to mail copies of such resolution shall not affect the validity of such resolution) and shall be published twice, with an interval not less than seven days between such publications, the first publication to be made not more than fifteen days after the date of the adoption of such resolution. Such resolution of the district making such amendment so approved shall be deemed conclusively to be binding upon the district and the holders of all bonds and coupons pertaining thereto at the expiration of thirty days after the first publication of the notice provided for in this section, except in the event of a final decree of a court of competent jurisdiction setting aside such resolution or annulling the action taken thereby in a legal action or equitable proceeding for such purpose commenced within such period. Nothing in this resolution contained shall be deemed or construed to authorize or permit, by reason of any call of a meeting of bondholders or of any right conferred hereunder to make such call, any hindrance or delay in the exercise of any rights conferred upon or reserved to the bondholders under any of the provisions of this resolution.

SEC. 29. The district may at any time adopt a resolution amending the provisions of this resolution or of any bonds, to the extent that such amendment is permitted by the provisions of section 27 to take effect when and as provided in this section. Upon adoption of such resolution, a copy thereof shall be mailed by the district to the bondholders, together with a request to the bondholders for their consent thereto, and notice thereof stating the substance of the amendment shall be published once in each calendar week for four successive calendar weeks on any day of the week (but failure to mail copies of such resolution and request shall not affect the validity of the resolution when assented to as in this section provided). Such resolution shall not be effective unless and until there shall have been filed with the district the written consents of the percentages of holders of outstanding bonds, specified section 27 hereof, and a notice shall have been published as hereinafter in this paragraph provided. Each such consent shall be effective only if accompanied by proof of ownership of the bonds for which such consent is given, which proof shall be such as is permitted by section 24 hereof. A certificate of the secretary of the district that he has examined such proof and that such proof is sufficient shall be conclusive that the consents have been given by the holders of the bonds described in such certificate. Any such consent shall be binding upon the holder of the bonds giving such consent and on every subsequent holder of such bonds (whether or not such subsequent holder has notice thereof) unless such consent is revoked in writing by the holder of such bonds giving consent or a subsequent holder, by filing such revocation with the district prior to the date when the notice hereinafter in this section provided for is first published. The fact that a consent has not been revoked may likewise be proved by a certificate of the secretary of the district. At any time if the holders of the required percentages of bonds shall have filed their consent to the resolution, a notice, stating the substance of the resolution and stating that the resolution has been consented to by the holders of the required percentage of bonds and will be effective as provided in this section, may be given to the bondholders by mailing such notice to the bondholders and publishing the same twice, with an interval of not less than seven days between such publications, the first publication to be made not more than fifteen days after the holders of the required percentages of bonds shall have filed their consent to the resolution. A record, consisting of the papers required by this section to be filed with the district, shall be proof of the matters therein stated, and the resolution shall be deemed conclusively to be binding upon the district and the holders of all bonds and coupons at the expiration of thirty days after the first publication of the notice last provided for in this section, except in the event of a final decree of a court of competent jurisdiction setting aside such consent or annulling the action taken thereby in a legal action or equitable proceeding for such purpose commenced within such period.

SEC. 30. Notwithstanding anything contained in the foregoing provisions of this resolution, the rights and obligations of the district and of the holders of the bonds and coupons pertaining thereto, and the terms and provisions of the bonds, or of this resolution, or of any resolution authorizing any bonds may be amended in any respect with the consent of the district, by the affirmative vote of the holders of all said bonds then outstanding at a meeting of bondholders called and held as hereinabove provided or with the consent of the holders of all of said bonds then outstanding given as provided in section 29, except that

in either event no notice to bondholders either by mailing or publication shall be required and the amendment shall be effective immediately upon such unanimous vote or consent of bondholders.

SEC. 31. Bonds owned or held by or for the account of the district shall not be deemed outstanding for the purpose of any vote or consent or other action or any calculation of outstanding bonds in this resolution provided for, and shall not be entitled to vote or consent or take any other action in this resolution provided for.

SEC. 32. Bonds delivered after the effective date of any action taken as hereinabove provided may bear a notation by endorsement or otherwise in form approved by the district as to such action, and in that case upon demand of the holder of any bond outstanding at such effective date and presentation of his bond for the purpose at the office of any paying agent for such bond, suitable notation shall be made on such bond as to any such action. If the district shall so determine, new bonds so modified as in the opinion of the district and its counsel to conform to such bondholders' action shall be prepared, delivered, and upon demand of the holder of any bonds then outstanding shall be exchanged, without cost to such bondholder, for bonds then outstanding hereunder, upon surrender of such bonds with all unmatured coupons pertaining thereto.

SEC. 33. If the district shall pay or cause to be paid to the holders of the bonds and coupons pertaining thereto, the principal, premium, if any, and interest to become due thereon, at the times and in the manner stipulated therein and in this resolution, all moneys or securities of the district which are not required for the payment or redemption of the bonds or coupons, may be transferred to the revenue fund. All bonds shall be considered to have been paid if and when there shall be on deposit in trust with the paying agents for said obligations, and irrevocably appropriated exclusively to that purpose, an amount which shall be sufficient to retire at maturity or by redemption prior to maturity on the next succeeding date upon which said obligations may be redeemed, all of the bonds outstanding at the time, together with interest thereon and premiums thereon that may be payable on the redemption of the same; provided that proper notice of redemption of all such obligations to be redeemed shall have been previously published or provision shall have been made for such publication, and further provided that moneys for the payment of the principal of such obligations so called and premium, if any, and interest thereon shall be available for immediate payment to the holders entitled thereto, and notice of such immediately availability shall have been published or provision satisfactory shall have been made for such publication, and further provided that all the necessary and proper fees, compensation, and expenses of the paying agents shall have been paid.

SEC. 34. This resolution is adopted under the authority of and in full compliance with the constitution and laws of the State of Washington, including chapter 1 of the Laws of Washington, 1931, as amended and supplemented. In consideration of the purchase and acceptance of the bonds by those who shall hold the same from time to time, the provisions of this resolution and of said laws shall constitute a contract with the holder or holders of each bond and coupons attached thereto, and the obligations of the district and its commission under said acts and under this resolution shall be enforceable by any holder of any bond by mandamus or any other appropriate suit or action in any court of competent jurisdiction; and the covenants and agreements herein set forth to be performed on behalf of the district shall be for the equal benefit, protection, and security of the holders of any and all of said bonds, and coupons, thereto attached, all of which, regardless of the time or times of their issue or maturity, shall be of equal rank without preference, priority, or distinction of any of said bonds or coupons thereto attached over any others thereof except as expressly provided herein.

SEC. 35. Whenever in this resolution the district is named or referred to, it shall be deemed to include the successors and assigns and all the covenants and agreements in this resolution contained by or on behalf of the district shall bind and inure to the benefit of its successors and assigns whether so expressed or not.

SEC. 36. If any one or more of the covenants or agreements provided in this resolution on the part of the district to be performed should be contrary to law, then such covenant or covenants, agreement or agreements, shall be null and void and shall be deemed separable from the remaining covenants and agreements, and shall in no way affect the validity of the other provisions of this resolution or of the bonds issued hereunder.

SEC. 37. The president and the secretary of the commission are hereby authorized and directed to execute thirty-three thousand six hundred bonds numbered AM 1 to AM 33,600, both inclusive, bearing interest and maturing as follows:

Maturity date	Amount	Interest rate	Bonds numbered
		Percent	
July 1, 1955	$276,000	3.00	AM 1–AM 276, inclusive.
July 1, 1956	284,000	3.00	AM 277–AM 560, inclusive.
July 1, 1957	293,000	3.00	AM 561–AM 853, inclusive.
July 1, 1958	301,000	3.00	AM 854–AM 1, 154, inclusive.
July 1, 1959	310,000	3.00	AM 1,155–AM 1,464, inclusive.
July 1, 1960	320,000	3.00	AM 1,465–AM 1,784, inclusive.
July 1, 1961	329,000	3.00	AM 1,785–AM 2,113, inclusive.
July 1, 1962	339,000	3.10	AM 2,114–AM 2,452, inclusive.
July 1, 1963	350,000	3.10	AM 2,453–AM 2,802, inclusive.
July 1, 1964	361,000	3.10	AM 2,803–AM 3,163, inclusive.
July 1, 1965	372,000	3.10	AM 3,164–AM 3,535, inclusive.
July 1, 1966	383,000	3.10	AM 3,536–AM 3,918, inclusive.
July 1, 1967	395,000	3.10	AM 3,919–AM 4,313, inclusive.
July 1, 1968	407,000	3.10	AM 4,314–AM 4,720, inclusive.
July 1, 1969	420,000	3.10	AM 4,721–AM 5,140, inclusive.
July 1, 1970	433,000	3.10	AM 5,141–AM 5,573, inclusive.
July 1, 1971	446,000	3.10	AM 5,574–AM 6,019, inclusive.
July 1, 1972	460,000	3.20	AM 6,020–AM 6,479, inclusive.
July 1, 1973	475,000	3.20	AM 6,480–AM 6,954, inclusive.
July 1, 1974	490,000	3.20	AM 6,955–AM 7,444, inclusive.
July 1, 1975	506,000	3.20	AM 7,445–AM 7,950, inclusive.
July 1, 1976	522,000	3.20	AM 7,951–AM 8,472, inclusive.
July 1, 1977	539,000	3.20	AM 8,473–AM 9,011, inclusive.
July 1, 1978	556,000	3.20	AM 9,012–AM 9,567, inclusive.
July 1, 1979	574,000	3.20	AM 9,568–AM 10,141, inclusive.
July 1, 1980	592,000	3.20	AM 10,142–AM 10,733, inclusive.
July 1, 1981	611,000	3.20	AM 10,734–AM 11,344, inclusive.
July 1, 1982	631,000	3.30	AM 11,345–AM 11,975, inclusive.
July 1, 1983	651,000	3.30	AM 11,976–AM 12,626, inclusive.
July 1, 1984	673,000	3.30	AM 12,627–AM 13,299, inclusive.
July 1, 1985	695,000	3.30	AM 13,300–AM 13,994, inclusive.
July 1, 1986	718,000	3.30	AM 13,995–AM 14,712, inclusive.
July 1, 1987	742,000	3.30	AM 14,713–AM 15,454, inclusive.
July 1, 1988	766,000	3.30	AM 15,455–AM 16,220, inclusive.
July 1, 1989	792,000	3.30	AM 16,221–AM 17,012, inclusive.
July 1, 1990	818,000	3.30	AM 17,013–AM 17,830, inclusive.
July 1, 1991	845,000	3.30	AM 17,831–AM 18,675, inclusive.
July 1, 2005	14,925,000	3.50	AM 18,676–AM 33,600, inclusive.

and deliver same to John Nuveen & Company and Associates, Chicago, Illinois, the purchasers thereof upon payment of the purchase price of 95 percent of the par value thereof plus accrued interest thereon to the date of delivery thereof, which sale price is deemed by the commission to be for the best interests of the district, and in general to sign all documents, receipts and instruments required in the opinion of counsel for the district to effect such delivery and payment.

SEC. 38. All proceeds from the sale of bonds shall be deposited by the county treasurer in a special account to be known as the Rock Island project construction fund, and the district agrees that the moneys in said account will be withdrawn only for the following purposes and none other, to wit:

1. To the payment and reimbursement of all costs and expenses of the district incurred and paid in connection with preliminary engineering, legal and accounting services properly chargeable to the capital account of the production system.

2. To the payment of all costs of financing the acquisition of the production system including the fiscal agent's fee of Guy C. Myers and the expense of issuing the bonds.

3. To the payment of all costs and expenses in connection with the design and construction or other acquisition of the production system as specified in this resolution or as such production system may be modified during the course of construction upon the recommendation or approval of the consulting engineer.

4. To the payment of interest on the bonds to the extent that such interest cannot be paid from the revenue fund and is properly chargeable to the capital account of the production system.

5. To establish working capital of not to exceed ninety days' operation and maintenance costs of the production system as estimated by the consulting engineer.

6. To invest such moneys as are certified by the consulting engineer as not necessary for immediate expenditure for the purposes above set forth in subparagraphs 1 to 5, inclusive, in general obligations of the United States Government maturing prior to the date certified by the consulting engineer as the date when such invested moneys will be required for said purposes. Interest earned on such investments shall be a part of the Rock Island project construction fund.

The president and the secretary of the commission are hereby authorized to execute and deliver in the name of the district any and all orders and releases required to enable the district to pay from said proceeds any and all amounts of money required to perform fully the obligations of the district with respect to the acquisition of the production system in the manner provided by law.

Any moneys remaining from the proceeds of sale of bonds in excess of the amounts required for the purposes specified in subparagraphs 1 to 5, inclusive, above, shall be transferred to the reserve fund.

SEC. 39. This resolution shall be in effect from and after its passage in accordance with law.

SEC. 40. All resolutions or parts of resolutions in conflict herewith be and the same are hereby repealed.

Adopted this 23d day of April 1951.

KIRBY BILLINGSLEY, *Secretary.*

CERTIFICATE OF SECRETARY

STATE OF WASHINGTON,
County of Chelan, ss:

I, Kirby Billingsley, do hereby certify that I am the duly elected, qualified, and acting Secretary of Public Utility District No. 1 of Chelan County, Washington, and the custodian of its records; that the attached and foregoing is a full, true and correct copy of Resolution Numbered 292, entitled, "A resolution providing a plan and system for the acquisition by purchase and construction of an electric utility system of Public Utility District No. 1 of Chelan County, Washington, and providing for the issuance of revenue bonds for said purposes and for the creation of a special fund for the payment thereof" and that said resolution was duty adopted by the affirmative vote of all of the commissioners of said district at a special meeting regularly held on April 23, 1951, at which all members of the commission were present; that said resolution has not been altered, amended or repealed and the same is in full force and effect.

In witness whereof, I have hereunto set my hand and affixed the official seal of said district this 8th day of May 1951.

[SEAL] KIRBY BILLINGSLEY,
Secretary of Public Utility District No. 1 of Chelan County, Washington.

Mr. MACK. We are very happy to have here as a witness today the former secretary to the Honorable Clarence Dill when he was Senator from the State of Washington and also a former Federal fisheries commissioner for the United States Government, Mr. Frank Bell, of Ephrata.

STATEMENT OF FRANK T. BELL, FORMER UNITED STATES FISH COMMISSIONER FROM THE STATE OF WASHINGTON

Mr. BELL. Mr. Chairman, gentlemen of the committee, my name is Frank T. Bell, from the State of Washington.

I was a former United States fish commissioner when the Bonneville fish ladder lifts were built with the Engineer Corps. So I have had that experience in that line, and I served for 8 years on the International Halibut Commission, where they had 2 Americans serving and 2 Canadians—myself and Dr. Allen on the American side and Dr. Babcock and Dr. Pound on the Canadian.

As far as the fish people are concerned, I'm now employed in an advisory capacity to the utility district, Grant County.

I don't think it poses any unusual problem because they've got to get over the Bonneville and the Dalles and McNary before they get to this dam.

Mr. ANGELL. They will probably be pretty tired by that time.

Mr. BELL. I am thinking about the Dalles and McNary, 8 feet higher than the Priest Rapids Dam. That is, I am talking of the two-stage dam. Of course, the 150-foot dam—there's no precedent to go by as to whether they could possibly get them up over that or not, or possibly get them back down on account of the type of generator they have to use on the high-lift dam. On the low lift, they use caplan generators, and it is some 9 feet from the base of the turbine wall, which gives the 9 feet there, and they run slower than they would on a higher lift generator.

Mr. ANGELL. Mr. Chairman, may I interrupt there to ask one question?

Mr. MACK. Mr. Angell.

Mr. ANGELL. From your experience with the fishing industries, what are your views as to whether or not the fishing problem of Columbia River is being taken care of properly by the fish facilities that have been and are being installed in Columbia River dams?

Mr. BELL. Well, my position is an obstruction across any stream is not conducive to bettering the fish condition; but I don't think it poses any insurmountable problem; and I think Bonneville—you are very familiar with it, Congressman—that we did do something through our research, and we have built up the run better than it was before, but that is on account of the research and the irrigation ditches and the conservation ditches that were screened.

Now, with the McNary Dam the corps is using I think, principally the same plan that was used at Bonneville. Of course, that was later engineering techniques, and there are probably some modern techniques they are using; but if they get them up over the NcNary Dam, I can't see why we would have any difficulty in passing them on.

Mr. ANGELL. Is there much of a salmon run as far up as Priest Rapids?

Mr. BELL. Yes; the salmon run as far as the Okanogan River, but the Chief Joseph shuts them off entirely, the same as the Grand Coulee did.

Mr. MACK. Have you discussed the fish problem involved, Mr. Bell, with the State fisheries department?

Mr. BELL. Yes; I have, with the branch office in Portland of the Fish and Wildlife Service.

Mr. MACK. Have they expressed approval or disapproval?

Mr. BELL. They took the position I did. It wouldn't help the fish any, but there was a possibility—it wasn't something insurmountable.

Mr. MACK. In other words, the report from them might not be favorable?

Mr. BELL. Well, my report would be that it could be done.

Mr. MACK. I said their report.

Mr. BELL. Their report—they would rather not have any dams, of course, I expect.

Mr. ANGELL. You haven't taken it up with the fish yet?

Mr. BELL. No; we haven't taken it up with the fish yet.

So, that's all I have to say, unless you people have some questions.

Mr. MACK. Mr. Watts.

Mr. WATTS. No questions.
Mr. MACK. Mr. Angell.
Mr. ANGELL. That is all.
Mr. MACK. Thank you, Mr. Bell.
Mr. BELL. Thank you.
Mr. MACK. We have one more witness before we call the Army engineers; Mr. Axel Strom.
Will you give your name to the reporter and identify yourself?

STATEMENT OF AXEL STROM, PUBLIC UTILITY DISTRICT, GRANT COUNTY, WASH.

Mr. STROM. My name is Axel Strom. I am employed by the Public Utilities District of Grant County, Wash. I was previously on the staff of the University of Washington in the bureau of business research.

In this statement, Mr. Chairman, I have pointed out briefly some facts on the economy of the area. Would you care that I should read that in view of the time?

Mr. MACK. Well, we have one more witness. If you want to extend it into the record, we will grant you permission to do so.

Mr. STROM. Whatever you wish.

Mr. MACK. Just hit the high spots, and we will extend the complete statement in the record.

Mr. STROM. We have had a very large population growth, as many of you know, and to support this population growth the pattern of our industry in the area has been manufacturing, agriculture, fisheries, and mining.

Just to give you some idea, in 1952 the manufacturing industries had an annual payroll of about $800 million, with the value added by manufacture of $1,100 million and a total value of the product at about $2,500 million.

During the same year the value of our farm products was $659 million; the value of canned fish and shellfish about $25 million, and the value of mineral products about $50 million.

The manufacturing activities in the State of Washington can be classified into about four major categories, namely, forest products, foods, metals, chemicals, and miscellaneous activities.

In 1952 the metals and chemicals industries and the forest products were about even as far as payrolls were concerned and employed about 185,400 persons.

Mr. ANGELL. You are referring to the State as a whole?

Mr. STROM. Yes; the State of Washington.

The food processing is of some significance to the State of Washington and will increasingly be so when the Columbia Basin project comes into its own.

There is one thing I would like to touch on lightly, and that is the use of electrical energy in industry has increased, and this has been true over the Nation as a whole. Between 1940 and 1950 our commercial and small industrial load requirements in the Pacific Northwest increased by 117 percent, with an estimated increase of close to 400 percent by 1960.

I give you this to show the increase in our residential loads.

The same was true of industrial loads. They increased between 1940 and 1950 by 387 percent, and they estimate by 1960 they will be over 1,500 percent over the 1940 figure.

We are very much interested in Grant County in the development of the manufacturing because of our position there in the Columbia River Basin project.

As far as developing industry, we can get a better market for our farm products when we expand our area industries.

There is another thing we recognize, and that is that the Pacific Northwest does not have oil; it does not have gas, but it does have available electrical energy in the Columbia and other rivers.

Mr. ANGELL. It has very little coal, too.

Mr. STROM. We have some coal there, and someday I hope we can find methods to use it to its greatest extent.

Mr. ANGELL. It is very low grade.

Mr. STROM. That is correct; yes, sir.

There is and will be a continued growth in our electrical requirements, both in home and industry, and we will not have enough generating capacity to take care of our normal growth unless new generating facilities are started immediately.

Now, I would like to submit this statement and a report by Dr. N. H. Engle, director of the Bureau of Business Research at the University of Washington, relative to future power needs in our economy, if it meets with your pleasure.

Mr. MACK. We grant you that permission.

Mr. STROM. Thank you.

Mr. MACK. Thank you, Mr. Strom.

(The statement of Dr. Nathaneal H. Engle is as follows:)

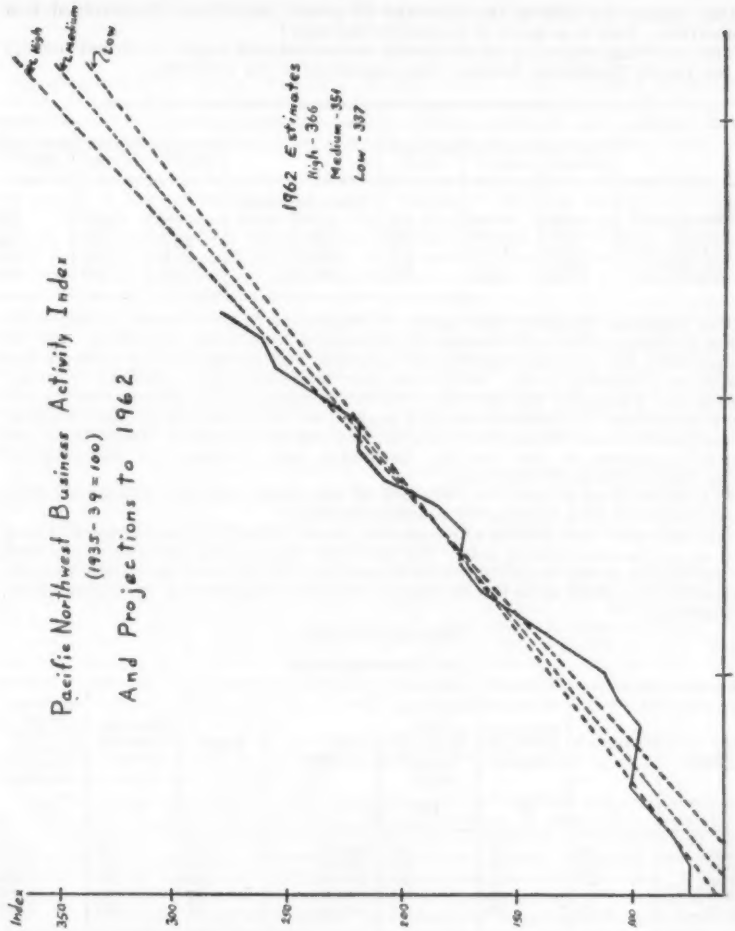
THE PACIFIC NORTHWEST POWER SHORTAGE

A statement by Nathaneal H. Engle, director of the Bureau of Business Research, University of Washington, Seattle, June 1, 1953

The Bureau of Business Research of the University of Washington follows closely the trends in business and industry in the Pacific Northwest. As director of the bureau since 1941, I have made a close and continuous study of the economy of this region.

While serving as chairman of the Washington State Industrial Development Committee I participated in studies of the electric energy supply and needs in the Pacific Northwest. One alarming fact which our studies brought sharply into focus was that new industries could not be guaranteed enough firm power to justify location in the area. The demand for firm power had outstripped the supply.

The industrial growth of the Pacific Northwest is measured by the index of business activity, compiled by the Bureau of Business Research. The attached chart indicates the trends in Pacific Northwest business from 1932 to 1952 with a projection of the long-range trend to 1962. It should be noted that the trend indicates a continuation of the high level of business which has prevailed in the past. From an index which now stands at about 260 (1935–39=100) the next decade may see a gain of 100 or more points. This assumes a continuation of the economic climate of recent years. Specifically, it assumes that the cold war will be with us but that defense expenditures will not expand, nor prices rise much above present levels. Indeed, some reductions in defense spending and price levels may be in order.



From the general business picture I should like to turn my attention to the electric energy outlook. The lag in growth in the supply of electric energy is a question of grave concern to the people of the Pacific Northwest and should be of equal concern to the entire Nation because of the key position played by this area in national defense production. I refer specifically to the fact that the Pacific Northwest has over a third of the Nation's aluminum refining capacity, provides an essential part of the atomic energy program through its operations at Hanford, Wash., is the home of the Boeing Aircraft Co., and contributes otherwise to our national defense.

Unless the supply of electric energy can be increased much faster than it has been in the past the Pacific Northwest may not be able to meet its full potential contribution to national defense. This could be very serious if hot war should suddenly break out upon us.

One straw in the wind underlines the problem this region faces by reason of the power shortage. That is the employment problem. Despite the fact that employment in this area has been running well ahead of last year, so also has unemployment. This means that people have been moving into the Pacific Northwest faster than we have been able to find jobs for them.

One reason for this is the shortage of power, which has discouraged new industries. Just how great is the power shortage?

The following projection of the trends in demand and supply of electric energy in the Pacific Northwest indicate the magnitude of the problem.

[Thousands of kilowatts electric energy, minimum hydroelectric conditions]

	Potential demand	Potential supply	Indicated deficit		Potential demand	Potential supply	Indicated deficit
Year:				Year—Continued			
1952-53	4,086	3,589	497	1957-58	6,626	6,046	580
1953-54	4,732	4,169	563	1958-59	7,021	6,160	861
1954-55	5,362	4,891	471	1959-60	7,442	7,323	119
1955-56	5,847	5,446	401	1960-61	7,845	7,591	254
1956-57	6,245	5,720	525	1961-62	8,234	7,949	285

The foregoing estimates are based on projections of past trends in industrial loads, in commercial, and in domestic utilization, both urban and rural. On the supply side, the existing capacity of all public and private utility systems was taken as a starting point. Only such new additions were added as were approved and well under way or with reasonable expectation of getting started over the next decade. Excluded were such projects as Hells Canyon, proposed Federal steam plants, lower Snake River plants, and the controversial Mossy Rock and Mayfield projects on the Cowlitz. Estimates were included for the proposed Idaho Power run-of-river plants.

In brief, we took a hard, realistic look at the power picture and came out with what we feel to be a reasonably sound projection.

Our indicated load deficits are somewhat lower than BPA [1] estimates and may well be on the conservative side. For that very reason they underscore the need for additional power capacity the more heavily. If the more optimistic demand picture should materialize the shortage would be even greater as indicated below, column III.

Indicated deficits

[Thousands of kilowatts]

Year	BPA [1] I	University of Washington II	BPA demand University of Washington supply III	Year	BPA [1] I	University of Washington II	BPA demand University of Washington supply III
1952-53	607	497	607	1957-58	1,246	580	1,523
1953-54	625	563	625	1958-59	1,205	861	2,121
1954-55	932	471	899	1959-60	344	119	1,628
1955-56	751	401	986	1960-61	542	254	1,982
1956-57	1,081	525	1,316	1961-62	967	285	2,312

[1] Source: 1953 Advance Program, Bonneville Power Administration, p. 33.

In appraising the differences between our projections and those of BPA it should be stressed that our estimate of the increased capacity of the system can be expanded only by including projects which have not yet won the political support necessary to justify their serious consideration. It is conceded that additional sources of energy may be found. Thus, if S. 1793 be approved, the Priest Rapids project might be added to the projected supply much earlier than is now contemplated. Auxiliary sources of power not yet available may also be found. Until they are, it is unrealistic to count them.

On the demand side the more liberal projections could only come (*a*) if new industries could be guaranteed more firm power than seems reasonable to expect unless such proposals as S. 1793 are enacted into law, (*b*) if a large number of industrial consumers can be found capable of using interruptible power, or (*c*) if the domestic use should vastly exceed past trends.

In view of these considerations I believe it would be in the public interest to see S. 1793 enacted into legislation.

[1] Source: 1953 Advance Program, Bonneville Power Administration, p. 33.

(Submitted statement of Alex Strom is as follows:)

STATEMENT BY AXEL STROM

My name is Axel Strom, employed by the public utility district of Grant County, Wash. I was previously on the staff of the University of Washington in the bureau of business research. I should like to point out very briefly a few facts concerning the economy of the Pacific Northwest and the State of Washington.

Our area is growing in population, industry, and agriculture. The population has grown at an unprecedented rate both during World War II and after the war. Between 1940 and 1950 the 3 Pacific Northwest States of Washington, Oregon, and Idaho gained over 1 million people, or close to 30 percent, as compared to a natural growth pattern of 14.2 percent. The State of Washington increased 39 percent, studies by competent authorities indicate a continued increase in population higher than the natural average.

The pattern of industry which supports our present and future population is manufacturing, agriculture, fisheries, and mining. In the State of Washington, for example, in 1952 the manufacturing industries had an annual payroll of about $800 million, with value added by manufacture of $1,100 million, and a total value of product of about $2,500 million. During the same year the value of our farm products was $659 million; the value of canned fish and shellfish about $25 million; and the value of mineral products, largely nonmetallic, of about $50 million.

Manufacturing activities in the State of Washington can be classified into four major categories, namely, forest products, foods, metals and chemicals, and miscellaneous activities. In 1952 the grouping under metals and chemicals had the largest manufacturing payroll of about $323 million followed by forest products with $316 million and food with $90 million.

As of January 1953 these industries employed 185,400 persons. During the past few years the numbers employed in manufacturing have continued to increase with industries engaged in the production of metal and metal products and aircraft showing the greatest increase. For example, the numbers employed in metals and metal products increased from 8,294 in 1939 to 25,600 in 1953. The aircraft industry also shows a large increase from 4,559 to 30,800 in 1953. The growth in metals and metal products is primarily due to the expansion of the aluminum industry, while Boeing Aircraft Co. is responsible for the increase in the number of aircraft workers.

The food-processing industry is of significance to the State of Washington and will continue to increase in importance with the development of the Columbia Basin project with its 1,029,000 acres.

The increase in population, manufacturing, and agriculture are significant to the discussion of Priest Rapids Dam. The importance of population growth to the consumption of electric energy in the Pacific Northwest is illustrated by the growth in residential requirements both urban and rural. Between the years 1940 and 1950 the population growth of the area was around 30 percent. During the same interval the increase in kilowatt-hours consumed was close to 350 percent. By 1960 the estimated increase in residential requirements will be over 1,200 percent as compared to 1940.

The use of electric energy in industry has also increased. This has been true over the Nation as well as in the Pacific Northwest. Between 1940 and 1950 our commercial and small industrial load requirements increased by 117 percent, with an estimated increase of close to 400 percent by 1960. The large industrial load increased during the same period by 387 percent with an estimated increase of over 1,500 percent by 1960, as compared with 1940.

During the past 10 years the Pacific Northwest has witnessed the development of a new industrial and economic base in terms of primary light metal production. The three companies now engaged in primary aluminum production and fabrication in Washington and Oregon have a payroll of 8,080 persons. In 1952 their salaries and wages amounted to $34,900,000, transportation directly associated with the industry totaled $21,900,000, they purchased $20,788,000 worth of supplies in the Pacific Northwest, bought $13,800,000 worth of electric power, and paid $4,269,000 in State and local taxes.

The gradual increase in the number of fabricators made possible by the primary metal production has and will provide a broader economic industrial base, making possible increased employment, payrolls, and a larger local and Federal tax base.

Of importance to us in Grant County is the increase in manufacturing with its attendant payrolls, which will make possible a larger home market for the products grown on the Columbia Basin project.

The key to the development of our area economy in all of its many ramifications is the immediate need for additional electric power generation facilities to keep pace with our normal economic growth as we have no other energy resource such as gas or oil. Available studies on the potential demand and supply of electric energy indicate a continued deficit unless immediate steps are taken to alleviate the supply shortage.

In conclusion I should like to point out again that we are a growing area in all phases of our economy. There is and will be a continued growth in our electric energy requirements both in home and industry needs. We will not have enough generating capacity to take care of our normal growth unless new generating facilities are started immediately. I should also like to submit a statement by Dr. N. H. Engle, director of the bureau of business research at the University of Washington, relative to power needs in relation to our economy.

Thank you, gentlemen, for the opportunity of presenting this information.

Mr. MACK. Are there any questions?

Mr. ANGELL. Have you given any consideration to the possibility of atomic energy replacing hydroelectric power?

Mr. STROM. I haven't as yet; no, sir.

There has been considerable discussion on that, and I think the engineers are more able to answer that than I am.

Mr. ANGELL. I would like to have Mr. Whitbeck answer a question.

I wanted to ask you a question awhile ago, and I overlooked it, as to what effect that might have on the marketing of bonds running over a period of 50 or 55 years.

Mr. WHITBECK. My answer to that is: Whether it is atomic energy or competing gas, we always have to consider that, that gas comes in, and if it comes in cheap enough, they will have steam plants. We always have to look at that; and I am convinced there will be no switch to a different type of energy unless it is economically feasible, and the existing type will have paid off before they do it, whether it be hydrowater, or whatever it may be.

We feel the replacement will not be overnight and render absolutely obsolete all existing facilities; and in the transition period you can clean up the investment on the hydro, or whatever it was initially.

Mr. ANGELL. There is a possibility now, fairly good, there will be natural gas brought into that territory within a very few years. Would that leave the production of power at a cheaper rate than hydropower?

Mr. WHITBECK. We are told it will not or at least in sufficient quantity to replace all the hydro installations out there.

Mr. ANGELL. At any rate, as you view it, it wouldn't have any appreciable effect on the marketing of bonds over a long period?

Mr. WHITBECK. No, sir.

Mr. MACK. Mr. Whitbeck, from your knowledge of the electrical industry, can power be produced by the use of gas through steam plants as cheaply as hydroelectricity in a region like the Columbia River?

Mr. WHITBECK. I wouldn't think so in the Columbia River region; no.

Mr. MACK. It would still be cheaper even if there was gas in the region?

Mr. WHITBECK. I think so; yes, because I don't think gas could be brought in in such quantity to compete. Maybe eventually it could, but they have gas fields out there now, up in Canada, and they have to cross mountain ranges and have to bring a lot of gas in if they are going to have firm power.

I don't believe it would replace it, but the engineer here would be a better man to answer that particular question than I.

We don't hear it. If it is going to be replaced, we still think the bonds can be taken care of all right.

Mr. ANGELL. Are they now producing power by gas and steam at any place in the United States at any appreciable amount cheaper than we are able to produce hydroelectric power in the Pacific Northwest?

Mr. WHITBECK. I don't believe it is being done cheaper. It may be in some places, perhaps, where you are very near the fields. I don't think it is in any major area.

Mr. ANGELL. Any large production?

Mr. WHITBECK. I don't think so, but I'm not sure of that.

Mr. MACK. We thank you, Mr. Strom, for your testimony.

Before calling on our last witness, the United States Army engineers, the Chair would like to make a brief statement as to the reasons for these hearings today.

The Public Works Committee is extremely busy at the present time with hearings on a number of major projects, including the St. Lawrence project, proposals for a new national highway act, a proposal for a Federal building act, and, in addition to that, a number of flood-control and river and harbor matters.

It is extremely difficult for the subcommittee to secure time away from the full committee for special hearings.

We realize that these hearings today on this Priest Rapids project will have to be extended over a period of time in order that we may obtain complete statements and recommendations from the United States Army engineers.

The Chair appreciates that the Army engineers have not as yet had time to prepare a full statement of their views on the bills that have been introduced by Mr. Holmes and Mr. Magnuson.

The Chair felt that by getting these witnesses who are here now, and who desire to return to their homes, in the State of Washington, Chicago, and elsewhere, we could be helpful to them and at the same time secure information that we can use when these hearings are resumed.

After hearing the last witness, the hearings will be adjourned to the call of the Chair, when the committee will resume its sessions to consider further testimony on this subject.

The Chair and the committee are very happy, as always, to have Colonel Paules here with us as a witness today.

Colonel Paules.

STATEMENT OF LT. COL. E. C. PAULES, ASSISTANT CHIEF, CIVIL WORKS FOR POWER, CORPS OF ENGINEERS, DEPARTMENT OF THE ARMY

Colonel PAULES. Mr. Chairman, the Department of the Army has received a request from this committee for a report on H. R. 4898. I regret that the report has not been completed and I cannot give you at this time the official views of the Department, but I do have some remarks which I might make on the bill at this time for consideration of the committee.

The purpose of the bill is to modify the authorization of the Priest Rapids Dam as contained in the Flood Control Act of 1950 to permit the development of the Priest Rapids site by Public Utility District No. 2 of Grant County, Wash., under a license issued pursuant to the Federal Power Act. Such a license is to authorize the development of the site to provide for essentially the same power benefits as the presently authorized project.

Provisions would be made for further construction with respect to flood control and navigation, and the Department of the Army would review plans submitted to the Federal Power Commission and submit recommendations in connection therewith to the Commission.

The Department of the Army would be authorized to add flood-control features to any dam constructed at the Priest Rapids site.

If an application for a license is not filed with the Federal Power Commission within 2 years after enactment of the bill into law, the provisions of the bill would not be effective and the authorization contained in the Flood Control Act of 1950 would have the same status as before enactment of the bill into law.

Authorization of the Priest Rapids Dam is contained in the Flood Control Act of 1950 substantially in accordance with the plans recommended in House Document 531, 81st Congress. In that report the Priest Rapids project was recommended as an integral unit of a comprehensive plan for development of the Columbia River and its tributaries for flood control, navigation, power development, irrigation, and other purposes.

The reservoir created by the Priest Rapids Dam would extend from river mile 397 upstream to the existing Rock Island Dam.

The project would provide for storage of water up to elevation 590, which would make available 2,100,000 acre-feet of storage above the pool minimum of 540 for reducing flood damages.

That flood-control storage capacity is an integral part of the flood-control features of the comprehensive plan and is essential for effective flood control.

The project would also develop an average head of about 146 feet for utilizing the flows as regulated by upstream storage projects for the generation of hydroelectric power.

As recommended in House Document No. 531, provisions would be made at the Priest Rapids Dam for an ultimate installation of 1,590,000 kilowatts.

It was not contemplated that a navigation lock would be provided initially. Provisions would be made in the initial development for future navigation facilities by constructing a portion of the lock walls or other provisions through the dam together with any necessary temporary bulkhead closure or other means.

The estimated cost of the project, based on July 1952 price levels, was about $340 million, with an initial power installation of 1,219,000 kilowatts, with the provisions for future navigation facilities, and with the 2,100,000 acre-feet of flood-control storage.

The Corps of Engineers has no objection to the construction of the Priest Rapids project by the Grant County public-utility district provided that the project, as constructed, develops the full capabilities of the site as a part of the comprehensive plan for the control and utilization of the water resources for flood control, navigation, power, and other beneficial purposes.

The purpose of the public-utility district in developing the site is to obtain power, and the bill provides that the site shall be developed in such a manner as to provide substantially the same benefits with respect to power as would be provided in the plans recommended in House Document 531.

Such development could be accomplished with either 1 dam or more than 1 dam.

Information presently available indicates, in the testimony today, that the public-utility district is favorably considering 2 dams, 1 at the Priest Rapids site and 1 between that site and the Rock Island Dam.

The bill also provides that the development of the site by the public-utility district for power shall permit further construction with respect to flood control and navigation, and would authorize the Department of the Army to add flood-control features at any dam constructed at the Priest Rapids site.

Provisions for navigation in the event of a 2-dam development does not offer any unusual problems; but it may be noted that the addition of navigation may cost somewhat more since 2 locks would be necessary instead of 1 lock for a single-dam development.

The addition of flood control under the provisions of H. R. 4898 presents a number of problems. The plans for initial development of the site materially affect the costs to be incurred in obtaining flood-control storage.

Mr. MACK. What was that last statement again, Colonel?

Colonel PAULES. Whatever plans are developed for this project can materially effect the costs of providing the flood-control storage.

This is particularly important in the case of adding flood-control storage at some future time to an initial development for power by means of two dams.

Such increased costs would result principally from higher total construction costs of two-stage construction compared to the cost of single-stage construction and from the enhancement in land values along the shores of the pools created initially for power.

It is entirely possible that a detailed analysis of the problems involved would indicate that the future addition of flood control to the type of development desired by the public utility district could not be economically justified, even though the development of the district would permit further construction for flood control.

These problems can be resolved only after details of the plan of development by the public utility district become available and are analyzed.

It is recommended, therefore, that H. R. 4898 be amended to require either:

(1) That the development by the public utility district be in accordance with the plans recommended in House Document 531, 81st Congress, and authorizing the Federal Government to contribute to the public utility district the cost of including flood-control storage in accordance with an agreement to be reached between the Chief of Engineers, Corps of Engineers, and the public utility district; or

(2) That any increased cost of adding flood control to the plan of development constructed by the district over the estimated cost of adding flood control in the plan as recommended in House Document 531, 81st Congress, shall be borne by the public utility district.

The bill also should be modified to include authority for the Secretary of the Army to establish rules for the operation of the dam constructed by the district for flood-control purposes when the flood-control storage is provided.

In the event an application for a license is not made within 2 years after enactment of H. R. 4898 into law, the authorization for the development of the Priest Rapids site contained in the Flood Control Act of 1950 shall have the same status after such date it would have had if the bill had not been enacted.

In order that the intent, as expressed today, may be further clarified, it is suggested that the following be added to section 4 of the bill:

In the event the application for a license is denied by the Federal Power Commission, or if construction under a license is not carried out in a reasonable period of time as determined by the Federal Power Commission, the authorization for the development of the Priest Rapids site contained in the Flood Control Act of 1950 shall have the same status it would have had if this act had not been enacted.

That completes my statement.

I would like to enter in the record, Mr. Chairman, if I could, a copy of a letter which we sent to the Federal Power Commission commenting on the original application of the Public Utility District for license to the Federal Power Commission which at that time indicated a single-stage dam development.

Mr. MACK. Permission is granted by the Chair.

(The letter referred to is as follows:)

MARCH 3, 1953.

CHAIRMAN, FEDERAL POWER COMMISSION,
Washington 25, D. C.

DEAR MR. CHAIRMAN: Reference is made to the Commission's letter dated December 5, 1952, in regard to an application for a preliminary permit for a waterpower project (No. 2114) filed by Public Utility District No. 2 of Grant County, Wash. The proposed project would be located on the Columbia River at approximately mile 397, which is the site of the proposed Priest Rapids development presented in the Columbia "308" Review Report prepared by the Corps of Engineers, and authorized by the Congress for construction as a multiple-purpose project, and included in the Flood Control Act approved May 17, 1950.

The development proposed by the Public Utility District would consist of a combination concrete and earth-fill embankment dam, with a total length of about 11,780 feet at elevation 560, forming a reservoir extending upstream about 56 miles to the tail water of the Rock Island project, with a concrete spillway occupying the present river channel, a stilling basin, and sluiceways through the dam; provisions for installation of future navigation locks; fish ladders for passing migratory fish; a powerhouse to accommodate an initial installation of 23 turbine generators of 75,000 horsepower (53,000 kilowatts) capacity each, and an ultimate installation of 30 turbine generators aggregating 2,250,000 horsepower (1,590,000 kilowatts); and appurtenant hydraulic, mechanical and electrical facilities and miscellaneous project works.

The Priest Rapids project recommended in House Document No. 531, 81st Congress, 2d session, was authorized for construction by the Corps of Engineers as a part of the comprehensive plan for development of the water resources of the Columbia River Basin. This project was designed to permit the storage of water up to elevation 590, which would provide 2,100,000 acre-feet of storage above a minimum pool elevation of 540, for use in reducing flood damages in the Columbia River. Provisions would be made for an ultimate installation of 30 power generating units having the capacity of 53,000 kilowatts each, a total of 1,590,000 kilowatts. It was not contemplated that a navigation lock would be provided initially. Provisions would be made in the initial development for future navigation facilities by constructing the portion of the lock walls through the dam together with a temporary bulkhead closure. The present estimated cost of the project, based on July 1952 price levels, for initial installation of 23 power generating units (1,219,000 kilowatts) and with provisions for future navigation facili-

ties, is about $340,000,000. The current 6-year program of the Corps of Engineers does not include funds for this project in the 1954 fiscal year budget, but initiation of planning work is now scheduled for fiscal year 1955 with first construction possible in 1956.

The Priest Rapids project should be constructed to develop the full capabilities of the site as a part of the comprehensive plan for the control and utilization of the water resources, flood control, navigation, power and other beneficial purposes. It is the earnest desire of the Corps of Engineers to cooperate fully with all agencies who are concerned with the construction of the Priest Rapids project with a view of providing for full utilization of the site. Accordingly, the Corps of Engineers has no objection to construction of the Priest Rapids Dam by the public utility district, however, a number of matters should be given further consideration before a license is granted if full utilization of the site is to be obtained.

The application of public utility district does not define what provisions would be made for the future installation of navigation facilities. If the project is to be constructed by the utility district, that agency should be required to make provisions for navigation facilities in accordance with the initial plan recommended in House Document No. 531, 81st Congress. Any permission granted to the utility district should also provide for cooperation with the United States Government at such time as Federal funds become available for completing construction of the navigation facilities and that operation of the navigation facilities will be without restriction from the district. Such permission also should provide that the district will make available without cost to the United States, electrical power, lands, rights of passage, and other utilities that may be needed in connection with construction, operation, and maintenance of the navigation works. Prior to construction of the project, the Corps of Engineers should have an opportunity to make a careful review for determining whether or not navigation facilities should be provided in the initial project. Although it was not contemplated that a navigation lock would be necessary initially when the Priest Rapids project was recommended for authorization in 1948, the need for restudy prior to construction of the project is indicated by developments that have occurred in the area since that time.

The plan of the improvement outlined in the district's application, provides for a project without storage for flood-control purposes. It is noted, however, that the resolution in exhibit B provides that the district may at its own election provide for water-storage and flood-control facilities provided means of compensating the district for such storage facilities can be worked out with the Federal Government. The importance of the Priest Rapids Dam to the control of floods makes it essential that the project be designed and constructed so that flood-control storage will be obtained. The Congress has not established any general policy to compensate for flood-control storage provided in structures built by non-Federal agencies. The suggestion contained in exhibit B that the Federal Government compensate the district for such flood-control storage capacity is one of far-reaching importance, and it is suggested that this matter be resolved by action of the Congress prior to granting of final license to the public utility district.

The comprehensive plan for the development of the water resources of the Columbia River Basin as presented in House Document 531, 81st Congress, includes upstream storage and generating plants, and downstream generating plants which would be dependent upon the storage plants to increase natural river discharges for power generation during periods of low streamflow. Priest Rapids Dam is one of the downstream plants benefited by the upstream storage. Present dependable flows under minimum water conditions approximate 60,000 cubic feet per second, including the increased flows from existing Federal reservoirs and will amount to about 80,000 cubic feet per second when all phase C level storage upstream from Priest Rapids is completed. Justification of Federal upstream storage projects is predicated upon benefits at downstream plants, including Priest Rapids. The Priest Rapids project should bear its proper share of the cost of providing streamflow regulation commensurate with the benefits obtained therefrom. This matter is not discussed in the application and it is possible that the public utility district is assuming that the regulation of streamflow will be available without charge.

One copy of the application is returned herewith.

Sincerely yours,

C. H. CHORPENING,

Brigadier General, USA, Assistant Chief of Engineers for Civil Works

Mr. MACK. Colonel Paules, it is the Chair's understanding you will come forth June 22, or a little later, with a more complete and detailed statement as to the opinion of the Army engineers——

Colonel PAULES. Yes, sir.

Mr. MACK. On this particular project.

Perhaps it might be just as well instead of questioning you now that the committee members wait until that time arrives.

Colonel PAULES. Well, of course, we have to clear a final report on this with the Secretary of the Army and the Bureau of the Budget.

Mr. MACK. The Chair understands that.

Just one question: In flood control, these dams back up behind them a considerable volume of water. Is it the idea you release water from the dam prior to the time of the anticipated flood danger and thereby leave a vacant area that can be filled in by these storm or floodwaters and hold them?

Colonel PAULES. Well, we have two different plans on that, sir. In the upper storage reservoirs, we fill those reservoirs based on expected runoff. That is above Grand Coulee and in the upper Snake River. We draw those down as may be necessary, based on the expected runoff from the snow cover, and so on.

When we get down below Grand Coulee and in the lower reaches of the Snake River, we must gage our expectation of floods on the reading we have and what we expect to have in the way of a flood at the Dalles.

We would plan that when the flood-control storage of some 6 million acre-feet is provided below Grand Coulee—part of it on the lower Snake, part of it at Priest Rapids, and part of it at John Day—that we would operate that storage based on the flows we have at The Dalles, and to keep the flood within the levees at Portland and other areas which will be designed for a flow of about 800,000 cubic feet per second.

In the preliminary plans for Priest Rapids we would not fill but 5 feet of that flood storage unless flows at The Dalles were expected to go over 700,000 cubic feet per second, so that it would be comparatively rare when we would ever completely fill the flood storage at Priest Rapids.

Mr. MACK. If a private utility were to obtain the authority to construct this dam, would the Army engineers still have authority to order the water in the dam lowered in order to protect the lower areas from floods?

Colonel PAULES. Section 7 of the 1944 Flood Control Act provides that dams where flood-control storage is provided at Federal expense that regulations would be prescribed by the Secretary of the Army. We would not have that authority unless there was an investment of the Federal Government for flood control.

Mr. MACK. The Grand Coulee Dam—is there a flood control in that?

Colonel PAULES. No, sir; there is not at present.

There is a plan that when some of the other storage is in that the outlets of Grand Coulee could be modified.

It is presently operated much like one of the upstream storage dams, in that if you draw it down, based on the expected inflow from the snow cover and rain, and so on.

Mr. ANGELL. The Army engineers have the same control over the reclamation dams as they do over the river and harbor dams?

Colonel PAULES. Where there is an allocation for flood control; yes.

Mr. MACK. The reason I brought that question up is: There is a conflict of interests. The people down in the lower reaches of the river and often the Army engineers want the water to be released to relieve the danger of a flood. On the other hand, the people that are producing the power or carrying on the irrigation do not want the water released because they desire to generate more power or get more irrigation. In my opinion, the Army engineers should have the authority to order this water released in order to give protection to the lives and property of people downstream.

Colonel PAULES. There is a plan worked out in cooperation with all agencies in the area having reservoirs to draw them down in advance of expected high flows in the upper reaches, and then fill them at the end of the high-flow period. That way you conserve water and you still have a measure of flood control downstream.

Grand Coulee is the lowest project on the main stem that has storage for power.

Chief Joseph is merely a run-of-the-river plant, as is Priest Rapids, McNary, John Day, Dalles, and Bonneville.

The storage for flood control at Priest Rapids and John Day is merely to catch the floodwaters and hold them until they can be safely released. That flood-control storage has no bearing on the power picture at all.

Mr. ANGELL. I get complaints in my district from the reverse of that. They call me long distance and say Bonneville is realeasing water and raising the devil by flooding lands and for me to call up the Army engineers and see what can be done about it.

Colonel PAULES. There is no function of flood control in the Bonneville project.

Mr. ANGELL. But their contention is releasing water in Grand Coulee to provide flood-storage capacity creates an additional hazard on the lower reaches of the Columbia, particularly Sofis Island, which floods some of their land and destroys their crops.

Mr. MACK. Colonel, could you get approximately the same amount of storage through 2 low dams to firm up the power downstream as you could from 1 high dam?

Colonel PAULES. There is no storage at Priest Rapids to firm power production except to take care of daily variations in the Priest Rapids.

Mr. MACK. I see. It is not like the Albeni Falls Dam in that respect?

Colonel PAULES. No, sir; it is not like the Albeni Falls Dam.

Mr. ANGELL. Albeni Falls is largely storage, is it not?

Colonel PAULES. Yes, sir; although it will have a powerplant.

Mr. MACK. What is your schedule for a completion date of Priest Rapids?

Colonel PAULES. I think we have a schedule, sir. May I look that up?

Mr. ANGELL. That depends on the Appropriations Committee, doesn't it?

Mr. MACK. That is right.

Colonel PAULES. Appropriations Committee and appropriations by the Congress. We have not as yet had any planning funds for Priest Rapids. So we have not made a detailed plan of the project.

Mr. MACK. Would Priest Rapids normally be considered a new start?

Colonel PAULES. Yes, sir, just like the Dalles, or——

Mr. MACK. Well, the Dalles is already under construction?

Colonel PAULES. The Dalles is already underway now, but——

Mr. MACK. Do you have the reply to the question?

Mr. KINNEY. In regard to the construction schedule, in our letter to the Federal Power Commission on March 3, 1953, we replied:

> The current 6-year program of the Corps of Engineers does not include funds for this project in the 1954 fiscal budget, but initiation of planning work is now scheduled for fiscal year 1955, with the first construction possible in 1956.

Mr. MACK. Colonel, I understood in your statement the installed capacity of this dam would be a million five hundred thousand thousand kilowatts; is that correct?

Colonel PAULES. The ultimate capacity, with 30 generating units.

Mr. MACK. Bonneville gave me a map, which I have in my office, and I looked at that today and it said 990,000 kilowatts. I came here and heard that it is 1,200,000, and now you say 1,500,000.

Now, apparently, that gets to be a better dam site all the time.

Colonel PAULES. The 1,200,000 kilowatts, I think, was the original plan in the 308 report, House Document 531, for the initial installation.

Mr. MACK. Mr. Angell.

Mr. ANGELL. Is it the next project on your schedule for taking up when you get money and authorization?

Colonel PAULES. My personal opinion, sir, is that a storage project is something that should come first because of the fact in low-water periods capacity at Bonneville and even Grand Coulee is reduced when there is no water stored above.

Mr. ANGELL. Which would be the next storage dam, then?

Colonel PAULES. We are planning the Libby Dam to definitely firm up the site at the present time.

Mr. ANGELL. That is in Montana?

Colonel PAULES. Yes, sir. That is located over here, on the Kootenai River. It will have about 6 million acre-feet of storage.

Mr. ANGELL. How much will that produce in kilowatts?

Colonel PAULES. About 300,000 kilowatts prime or continuous power at the site and roughly seven hundred or eight hundred thousand downstream.

Mr. ANGELL. Close to a million?

Colonel PAULES. Yes, sir.

There is somewhere in the order of a thousand feet of a drop at these other dams along the way.

The storage reservoirs, like Libby, Albeni Falls, and Grand Coulee do materially help.

Mr. ANGELL. What is the estimated cost of the Libby Dam?

Colonel PAULES. About $283 million.

Mr. KINNEY. $284 million.

Colonel PAULES. $284 million.

Mr. ANGELL. You would get more kilowatts at that site than Priest Rapids?

Colonel PAULES. Not at the site, sir.

Mr. ANGELL. I mean with the storage capacity added, because it would firm up power on all the dams below it on the main stem of the Columbia.

Colonel PAULES. That's right, sir. It is one of the projects in the C–2 system which was the development recommended in the 308 report. That system included Bonneville, which was already constructed, the Dalles, John Day, McNary, Priest Rapids, Chief Joseph, Grand Coulee, Albeni Falls, and Libby and either Glacier View or an alternate for it.

Mr. ANGELL. How about the dams on the Snake?

Colonel PAULES. These were already authorized, sir.

Mr. ANGELL. Ice Harbor?

Colonel PAULES. Ice Harbor.

Mr. ANGELL. Are those scheduled for priority construction over those others you have mentioned?

Colonel PAULES. Ice Harbor is another run-of-the-river project, sir, that will make possible navigation during part of the year up to Lewiston, Idaho.

Mr. ANGELL. How many kilowatts would it add to the pool?

Colonel PAULES. A hundred and ninety-five thousand.

Mr. ANGELL. And what would be the cost?

Colonel PAULES. A hundred and thirty million dollars.

Mr. MACK. Is the Libby Dam an authorized project?

Colonel PAULES. Yes, sir.

Mr. MACK. There are some complications there over foreign affairs, aren't there, with Canada?

Colonel PAULES. It does back water into Canada.

Mr. MACK. I thought the Army engineers had recommended or given their approval to the State Department, expressed their approval, that they were in favor of deauthorizing Libby.

Colonel PAULES. No, sir.

Mr. MACK. That isn't true?

Colonel PAULES. That is not true. We are not in favor of deauthorizing the project.

We did withdraw the application which was pending before the International Joint Commission until such time as we could, with planning funds, definitely determine some of the things which have caused trouble in negotiations, that is, whether the site is about 3 miles above Libby or it is 11 miles above Libby.

Mr. MACK. That is probably how I got that impression.

Mr. ANGELL. If it backs water up in Canada, would you have to make compensation to Canada?

Colonel PAULES. Yes, sir.

I think it floods some 19,000 acres into Canada, up here.

Mr. ANGELL. Does that cover tillable land in production?

Colonel PAULES. Part of it; yes, sir. I understand that's been evaluated. The value of the land alone is about $6 million.

Mr. MACK. Mr. Watts.

Mr. WATTS. No questions.

Mr. MACK. Congressman Holmes, do you have a question?

I believe you had a question a minute ago.

Mr. HOLMES. It has been answered.

Mr. MACK. Congressman Magnuson.

Mr. MAGNUSON. Colonel Paules, in connection with John Day, would the Corps of Engineers be inclined to give it precedence over Priest Rapids because it would provide slack-water navigation up to Pasco?

Colonel PAULES. Well, I think with the completion of The Dalles and McNary that some navigation can get by fairly well without John Day.

John Day would have to have a lock in it, of course, when constructed. It would have flood-control storage and power production.

Mr. HOLMES. May I ask a question, Mr. Chairman?

Mr. MACK. Mr. Holmes.

Mr. HOLMES. A question on that same point: Has not John Day ever had precedence in your overall planning?

Colonel PAULES. We have done no planning as yet on John Day or on Priest Rapids, sir.

Mr. HOLMES. And you have no feelings about giving preference to John Day over and above Priest Rapids?

Colonel PAULES. There is a question which has been raised, sir, because of several towns located along the shores of John Day, whether we will be able to physically attain the full 2 million acre-feet of flood-control storage that was contemplated in the John Day project—there were 2 million acre-feet at John Day, and two million one at Priest Rapids.

Mr. ANGELL. How many kilowatts would John Day produce?

Colonel PAULES. John Day would have, I understand, an initial capacity of 1,190,000 kilowatts.

Mr. ANGELL. What would be the cost of the project?

Mr. KINNEY. $461 million.

Colonel PAULES. $461 million, sir.

Mr. ANGELL. Those are the only dams that are contemplated on the main stem in that entire area you have mentioned; are they not?

Colonel PAULES. That's right, sir.

To carry navigation up through Priest Rapids, as a future navigation matter, it would also require some development or improvement of the river reach through the Hanford area here.

Mr. ANGELL. But there are no additional dams under the 308 report?

Colonel PAULES. None contemplated.

Mr. MACK. Mr. Magnuson has a question.

Mr. MAGNUSON. Colonel Paules, just one more brief question: Does the act creating the Federal Power Commission specifically give the Corps of Engineers control over the flood-control features of these projects?

Colonel PAULES. I don't understand that by the Federal Power Act that there would be that provision, sir. Our counsel has advised that it would require special language authorizing the Department of the Army to set those regulations.

Mr. ANGELL. Mr. Chairman, may I ask an additional question?

Mr. MACK. Mr. Angell.

Mr. ANGELL. What would be the kilowatt capacity of Hell's Canyon?

Colonel PAULES. Hell's Canyon, I think, would have a capacity around 900,000, sir.

Mr. ANGELL. What would be the cost?

Colonel PAULES. The cost estimate I have seen by the Bureau of Reclamation, and I don't know the date on which that statement is based, is, I think, $356 million.

Mr. ANGELL. What effect would it have on storage and flood control?

Colonel PAULES. Hell's Canyon had provision for about 2 million acre-feet of flood storage; John Day, 2; and Priest Rapids, 2. It's roughly two in each, sir.

Mr. MACK. Thank you, Colonel Paules, for your statement to the committee today.

The members of the committee and the Chair join in thanking all you gentlemen for coming here today and providing us a wealth of information on the Priest Rapids project and other Pacific Northwest hydroelectric power development problems.

Do you want to make a statement?

Mr. HOLMES. Just on behalf of Congressman Magnuson and myself, we wish to thank the committee for hearing us on this bill.

Mr. MACK. The committee will be adjourned until the call of the Chair.

(Whereupon, at 4:28 p. m., the hearing was adjourned until call of the Chair.)

PRIEST RAPIDS HYDROELECTRIC PROJECT

WEDNESDAY, JULY 22, 1953

HOUSE OF REPRESENTATIVES,
COMMITTEE ON PUBLIC WORKS,
SUBCOMMITTEE ON FLOOD CONTROL,
Washington, D. C.

The subcommittee met, pursuant to notice, at 10:05 a. m. in room 1302, New House Office Building, Hon. Russell V. Mack, chairman of the subcommittee, presiding.

Mr. MACK. The Flood Control Subcommittee of the Public Works Committee will now be in session for the continuation of the hearing on the Priest Rapids Dam project as stated in H. R. 4898 by Mr. Holmes, and a corresponding bill by Mr. Magnuson.

I had a request from the Washington State Fishermen's Cooperative Association requesting that we ask for the opinion of the fisheries department of the State of Washington on this project, and we have written to the fisheries department requesting their report.

Also we have a report from the Army engineers and a report from the Bureau of the Budget which, without objection, will be inserted in the record.

(The reports of the Army engineers, the Bureau of the Budget, and Department of the Interior are as follows:)

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, D. C., July 15, 1953.

Hon. GEORGE A. DONDERO,
Chairman, Committee on Public Works, House of Representatives,
House Office Building, Washington 25, D. C.

MY DEAR MR. CHAIRMAN: We are enclosing a copy of our letter of this date to the chairman of the Senate Committee on Public Works with respect to S. 1793, a bill to provide for the development of the Priest Rapids site on the Columbia River, Wash., under a license issued pursuant to the Federal Power Act.

This letter is for the information of the House Committee on Public Works in connection with its consideration of H. R. 4898 and H. R. 4899.

Sincerely yours,

ROWLAND HUGHES,
Assistant Director.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, D. C., July 15, 1953.

Hon. EDWARD MARTIN,
Chairman, Committee on Public Works,
United States Senate,
Senate Office Building, Washington 25, D. C.

MY DEAR MR. CHAIRMAN: This is in reply to your letter of April 29, 1953, inviting the Bureau of the Budget to comment on S. 1793, a bill "To provide for the development of the Priest Rapids site on the Columbia River, Wash., under a license issued pursuant to the Federal Power Act."

The proposed legislation would provide an opportunity for non-Federal financing of hydroelectric power development in this area. It would modify the authorization for construction by the Corps of Engineers of the Priest Rapids Dam to permit the Federal Power Commission to issue a license under the Federal Power Act to Public Utility District No. 2 of Grant County, Wash., for development of the water resources at the site of the Priest Rapids Dam on the Columbia River. The license would provide for development of the site in such a manner as to provide substantially the same benefits with respect to hydroelectric power as would be provided in the plans recommended in the report of the Chief of Engineers dated June 28, 1949, contained in House Document No. 531, 81st Congress, 2d session. The bill also would provide for development so as to permit further construction with respect to flood control and navigation.

Staff of the Corps of Engineers tentatively estimates the cost of the project at current price levels at about $365 million with an initial power installation of 1,219,000 kilowatts and with provision for future navigation facilities, and 2,100,000 acre-feet of flood control storage. The principal value of this project lies in power generation. The continued economic growth of the Pacific Northwest will require additional generating facilities beyond those now under construction.

We understand that the public utility district contemplates the construction of 2 low dams in place of 1 high dam as provided in the report of the Chief of Engineers. While the district would make provision for the addition of flood-control storage at some later date by the Federal Government, it appears that the cost thereof would be in excess of that for an equivalent amount of flood-control storage if the project consisted of a single structure constructed in accordance with the present authorization. Based on information furnished to us by representatives of the public utility district, the cost of adding flood control to a 2-dam plan would be approximately $110 million whereas the cost of flood control based on a 1-dam plan, with construction in a single stage, would be about $73 million.

A decision therefore on these alternative proposals rests largely on the need for and the economic justification of providing flood-control storage at the Priest Rapids site. A decision to go forward at this time with the construction of two dams might result in its being impractical at a later date to go ahead with flood-control storage due to the large costs that would be involved in providing such storage. For this reason we believe that the committee will wish to give careful consideration to determine whether the flood storage in the amount proposed at the Priest Rapids site is required, and, if so, whether such storage should be provided by appropriate modification of the comprehensive plan for the development of the Columbia River Basin. This may make further investigations necessary.

We also note that the bill would constitute a deviation from the general policies laid down in the Federal Power Act in that it specifies the recipient of the license. That act provides for a complete analysis by the Federal Power Commission of all proposals and requires the Commission to decide on the proposal for development which is best adapted to comprehensive plans, giving a preference to State and municipal agencies. Accordingly, it is believed that the bill should not preclude the Federal Power Commission considering the issuance of a license to any interested applicant.

The bill provides that if an application for a license is not filed within 2 years, the original authorization for the development of the Priest Rapids site as contained in the Flood Control Act of 1950 shall again be in effect. We would suggest that the bill provide further that in the event applications for a license are denied or construction is not carried out within the time limits specified by the Federal Power Commission, the authorization contained in the 1950 act shall have the same status it would have had if this bill had not been enacted.

There are other modifications which should be considered, including specific provision for the establishment of rules for the operation of the project for flood-control purposes if such features are constructed, for the integration of power operations of the project with other power projects in the area, and for reimbursing the United States for reclamation project and other Federal lands which may be taken.

The President in his address on the state of the Union stated, in his discussion of conservation, that:

"* * * The best natural resources program will not result from exclusive dependence on Federal bureaucracy. It will involve a partnership of the States

and local communities, private citizens, and the Federal Government, all working together. This combined effort will advance the development of the great river valleys of our nation and the power that they can generate."

Accordingly, the Bureau of the Budget is in sympathy with the objective of the bill to encourage non-Federal participation in this development.

In the event that the committee should authorize a modification of the project involving the expenditure of Federal funds, no commitment can be made at this time as to when an estimate of appropriation therefor would be submitted since this would be governed by the President's budgetary objectives as determined by the then prevailing fiscal situation.

A copy of this letter is being furnished to Chairman Dondero of the House Committee on Public Works for consideration in connection with H. R. 4898 and H. R. 4899 which correspond to S. 1793. Also, we are enclosing a copy of the Department of the Interior's letter to us on S. 1793.

Sincerely yours,

ROWLAND HUGHES,
Assistant Director.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington 25, D. C., July 10, 1953.

Hon. JOSEPH M. DODGE,
Director, Bureau of the Budget, Washington 25, D. C.

MY DEAR MR. DODGE: This is in response to your request of May 14, 1953, for an expression of our views with respect to S. 1793, a bill to provide for the development of the Priest Rapids site on the Columbia River, Wash., under a license issued pursuant to the Federal Power Act.

S. 1793, which is identical with H. R. 4898 and H. R. 4899, would modify the authorization of Priest Rapids Dam on the Columbia River, Wash., as contained in the Flood Control Act of 1950 (64 Stat. 170, 179), to permit the Priest Rapids site to be developed under a Federal Power Commission license by Public Utility District No. 2 of Grant County, Wash., or such district or its successor in combination with other utilities with which it may legally affiliate. Such license would require development of the site so as to provide substantially the same power benefits as would be provided in the approved plans for Federal development. The Department of the Army would be authorized to add such flood-control features as are recommended in the approved Federal plan. If an application for a license is not filed with the Federal Power Commission within 2 years after the enactment of the act, the provisions of the act would lapse and the 1950 authorization would automatically reapply. The Federal Power Commission would be required to act upon the application within 1 year after it is filed.

This Department strongly supports the policy of encouraging non-Federal agencies to construct and operate hydroelectric projects in those instances in which they are willing and able to undertake the development in a manner which will not interfere with the reasonably full development of a river system for multiple purposes. This project offers an excellent opportunity for cooperation and partnership between the Federal Government and local agencies in expediting the maximum development of the water resources in the Pacific Northwest.

Investigations and studies of the Columbia River system have indicated for some time the desirability and feasibility of a multipurpose dam at the Priest Rapids site. The Priest Rapids project was included as one of the major multiple-purpose elements of the Columbia River basin project plan for development agreed on by the Secretaries of the Army and the Interior in April 1949. Following extensive hearings, Congress authorized Priest Rapids in 1950 along with other major elements designated as Corps of Engineer projects in the plan.

The Priest Rapids project is a major element in the power resources development with about one and a quarter million kilowatt installed capacity. The power requirements of the Pacific Northwest exceed the generating capacity and will continue to do so for a number of years. Accordingly, Priest Rapids has been scheduled for construction and addition to the system at the earliest time possible in the Federal program.

A substantial part of the assured power capabilities of the Priest Rapids Dam depends upon upstream storage and the integrated operation of the project with other major power facilities in the Columbia Basin. Accordingly, this project should be designed and operated as a part of the overall system of multiple-purpose river development in order that the greatest power benefits can be obtained for the region as a whole. This Department stands ready to cooperate fully with the licensee in the integration of the project with Federal power facilities in the region in order that maximum benefits can be obtained.

Priest Rapids is one of the new starts which should, if possible, be made in the next year or two if the schedule established to meet the power needs of the region is to be maintained. Accordingly, we support the provision of S. 1793 which directs the Federal Power Commission to act promptly upon any application filed pursuant to the authorization.

The urgent need for this project to make a major contribution to power capacity in the region is clearly established. We believe that the Grant County Public Utility District should be permitted to develop this site if it will do so in accordance with plans that will develop the full resources of the site as determined by the Federal Power Commission.

Heavy Federal expenditures have been made in the past to maintain the anadromous fish runs stopped by the Grand Coulee Dam upstream from Priest Rapids. Runs were transplanted in tributaries above Priest Rapids, including the Wenatchee, Entiat, and Methow Rivers, with marked success. Fish ladders should be installed at Priest Rapids Dam in order to permit these runs to continue to reach their newly established spawning grounds. If the proposed legislation is enacted, and an application for a license is filed, this Department will submit its views regarding fish facilities to the Federal Power Commission in accordance with usual procedures under the Federal Power Act.

One other item in connection with S. 1793 requires comment. If the reservoir area is developed as proposed in the plan adopted by Congress in 1950, it would embrace approximately 3,800 acres of land now included within the Columbia Basin Federal reclamation project. Some of this land is public land that was withdrawn for settlement purposes under authority of section 3 of the act of June 17, 1902 (32 Stat. 388). The remainder was acquired for resale for settlement purposes pursuant to the Columbia Basin Project Act (57 Stat. 14), as amended. The United States should be reimbursed for the fair market value of these lands as they would, were they to remain in the Columbia Basin project, be sold for settlement purposes as provided by the Columbia Basin Project Act. Under that act the cost of acquiring lands for settlement purposes has a bearing on the price at which all settlement lands must be sold. In addition, the United States should also be reimbursed in the amount of $140 for each acre of arable land included in these 3,800 acres. This sum represents the share of the construction costs of the Columbia Basin Federal reclamation project for which each acre of arable land within the project is obligated under the existing repayment contract, together with the estimated charge for a 10-year development period. In the absence of reimbursement for the project costs allocable to reclamation project lands that are removed from the project, these costs must be made up from other project revenues. Were the Priest Rapids development to be undertaken by the Department of the Army, an agreement would be sought with that agency for the payment to this Department of the reclamation costs in question, as has been the case in connection with other activities of constituent agencies of the Department of Defense that have involved the permanent occupancy of arable reclamation project lands. In order to assure that appropriate compensation will be paid in the event a license is issued pursuant to S. 1793, it is recommended that there be added at the end of section 1 a provision in the nature of the following: "Such license shall provide for the licensee to reimburse the United States for the fair market value, as determined by the Secretary of the Interior pursuant to the Columbia Basin Project Act, as amended, of all Columbia Basin project reclamation withdrawn or acquired lands required for the development of the site, together with $140 for each acre of arable land included within such reclamation withdrawn or acquired lands. Payments made by the licensee pursuant to this requirement shall be deemed to be revenues of the Columbia Basin project and they shall be paid over to the Secretary of the Interior for deposit in the Treasury in accordance with the laws governing the disposition of Columbia Basin project revenues."

Sincerely yours,

DOUGLAS MCKAY,
Secretary of the Interior.

DEPARTMENT OF THE ARMY,
Washington 25, D. C., July 16, 1953.

Hon. GEORGE A. DONDERO,
Chairman, Committee on Public Works,
House of Representatives.

DEAR MR. CHAIRMAN: Reference is made to your request for the views of the Department of the Army concerning H. R. 4898, 83d Congress, a bill to provide for the development of the Priest Rapids site on the Columbia River, Wash., under a license issued pursuant to the Federal Power Act.

The Department of the Army has considered the above-mentioned bill. The purpose of the bill is to modify the authorization of Priest Rapids Dam as contained in the Flood Control Act of 1950 to permit the development of the Priest Rapids site by Public Utility District No. 2 of Grant County, Wash., under a license issued pursuant to the Federal Power Act. Such license is to authorize the development of the site to provide for substantially the same power benefits as the presently authorized project. Provisions would be made for further construction with respect to flood control and navigation and the Department of the Army would review plans submitted to the Federal Power Commission and submit recommendations in connection therewith to the Commission. The Department of the Army would be authorized to add flood-control features to any dam constructed at the Priest Rapids site. If an application for a license is not filed with the Federal Power Commission within 2 years after enactment of the bill into law, the provisions of the bill would not be effective and the authorization contained in the Flood Control Act of 1950 would have the same status as before enactment of the bill into law.

Authorization for the Priest Rapids Dam is contained in the Flood Control Act of 1950, substantially in accordance with the plans recommended in House Document No. 531, 81st Congress, 2d session. In that report the Prist Rapids project was recommended as an integral unit of a comprehensive plan for development of the Columbia River and its tributaries for flood control, navigation, power development, irrigation, and other purposes. The reservoir would extend from river mile 397 upstream to the existing Rock Island Dam. The project would provide for storage of water up to elevation 590, which would make available 2,100,000 acre-feet of storage above a minimum pool elevation of 540 for use in reducing flood damages. That flood-control storage capacity is an integral part of the flood-control features of the comprehensive plan and is essential for effective flood control. The project would also develop an average head of about 146 feet for utilizing the flows as regulated by upstream storage projects for the generation of hydroelectric power. As recommended in House Document No. 531, provisions would be made at the Prist Rapids Dam for an ultimate installation of 1,590,000 kilowatts. It was not contemplated that a navigation lock would be provided initially. Provisions would be made in the initial development for future navigation facilities by constructing the portion of the lock walls through the dam together with a temporary bulkhead closure. The estimated cost of the project, based on July 1952 price levels, was about $340,000,000, with an initial power installation of 1,219,000 kilowatts with provisions for future navigation facilities, and with 2,100,000 acre-feet of flood-control storage.

The Corps of Engineers has no objection to construction of the Priest Rapids project by the Grant County Public Utility District provided that the project, as constructed, develops the full capabilities of the site as a part of the comprehensive plan for the control and utilization of the water resources for flood control, navigation, power, and other beneficial purposes. The purpose of the public utility district in developing the site is to obtain power and the bill provides that the site shall be developed in such a manner as to provide substantially the same benefits with respect to power as would be provided in the plans recommended in House Document No. 531. Such development could be accomplished with either 1 dam or more than 1 dam. Information presently available indicates that the public utility district is favorably considering 2 dams, 1 at the Priest Rapids site and 1 between that site and the Rock Island Dam.

The bill also provides that the development of the site by the public utility district for power shall permit further construction with respect to flood control and navigation and would authorize the Department of the Army to add flood-control features at any dam constructed at the Prist Rapids site.

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The provisions for navigation in the event of a 2-dam development does not offer any unusual problems, but it may be noted that the addition of navigation may cost somewhat more since 2 locks would be necessary instead of 1 lock for a single-dam development. The addition of flood control under the provisions of H. R. 4898 presents a number of problems. The plans for initial development of the site materially affect the costs to be incurred in obtaining the flood-control storage. This is particularly important in the case of adding flood-control storage at some future time to an initial development for power by means of two dams. Such increased costs would result principally from higher total construction costs of two stage construction compared to the cost of single stage construction and from the enhancement in land values along the shores of the pools created initially for power. It is entirely possible that a detailed analysis of the problems involved would indicate that the future addition of flood control to the type of development desired by the public utility district could not be economically justified even though the development of the district would permit further construction for flood control. These problems can be resolved only after details of the plan of development by the public utility district become available and are analyzed. It is recommended, therefore, that H. R. 4898 be revised to require either (1) that the development by the public utility district be in accordance with the plans recommended in House Document No. 531, 81st Congress, 2d session, and authorizing the Federal Government to contribute to the public utility district the cost of including flood-control storage in accordance with an agreement to be reached between the Chief of Engineers and the public utility district or (2) that any increased cost of adding flood control to the plan of development constructed by the district over the estimated cost of adding flood control in the plan as recommended in House Document No. 531 shall be borne by the public utility district. The bill also should be modified to include authority for the Secretary of the Army to establish rules for the operation of the dam constructed by the district for flood-control purposes, when the flood-control storage is provided.

In the event an application for a license is not made within 2 years after enactment of H. R. 4898 into law, the authorization for the development of the Priest Rapids site contained in the Flood Control Act of 1950 shall have the same status after such date it would have had if H. R. 4898 had not been enacted. It is suggested that the bill be modified to provide further that in the event the application for a license is denied by the Federal Power Commission or if construction under a license is not carried out in a reasonable period of time as determined by the Commission, the authorization contained in the 1950 act shall have the same status it would have had if H. R. 4898 had not been enacted.

The Bureau of the Budget advises that there is no objection to the submission of this report.

Sincerely yours,

ROBERT T. STEVENS,
Secretary of the Army.

(Hon. Walter Horan appeared and submitted the following statement for inclusion in the record.)

JULY 22, 1953.

The Wenatchee Chamber of Commerce urges the authorization of locks at the time of construction of Priest Rapids Dam. The so-called provision for locks, in our opinion, is inadequate assurance that locks will be constructed in the future and that full development of Priest Rapids site will proceed in an orderly manner.

The Chief Joseph Dam irrigation project is an example of the difficulty and extra work necessary on the part of both congressional committees and interested communities when full development of a site is not included in the original authorization.

Locks in Priest Rapids are necessary to link central Washington with Southwest Washington and salt-water transportation. Oil, lumber, apples, wheat, aluminum, both pig and bauxite, silvery pig, minerals, Columbia Basin products and the effect on freight rates, we believe, will provide necessary justification for locks at the time of construction.

We would like the full committee to check the date of the economic survey which was made by the Army engineers. We believe this survey is based on information about 4 years old. Many developments have taken place in north central Washington since that time.

We would appreciate your consideration of inclusion of authorization for locks in Priest Rapids at this time.

E. O. ALLEN,
President, Wenatchee Chamber of Commerce, Wenatchee, Wash.

Mr. MACK. Mr. Holmes, have you a presentation to make now?

STATEMENT OF HON. HAL HOLMES, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WASHINGTON—Resumed

Mr. HOLMES. Mr. Chairman and gentlemen of the committee, as the chairman stated, this is a continuation of the hearings of the Subcommittee on Flood Control, with Mr. Mack as chairman, concerning my bill, H. R. 4898.

This morning, Mr. Chairman, if it meets with your approval, there are Congressman Don Magnuson, who has introduced an identical bill here, and Mr. Glenn Smothers, manager of the Grant County PUD, interested in this legislation from the State of Washington who are here ready to testify.

After a statement by Mr. Magnuson, with the permission of the committee I would like to have Mr. Glenn Smothers make a statement, in that sequence.

Mr. MACK. That will be new material he is going to present in addition to the material he presented the other day?

Mr. HOLMES. That is right.

Mr. MACK. It will not cover the same field?

Mr. HOLMES. That is right; and will include clarification of some questions that arose at the first hearings.

Mr. MACK. Without objection, we will follow that procedure.

Mr. HOLMES. Mr. Chairman, at that hearing which occurred some time ago a question arose in the minds of the subcommittee as to the Grant County PUD's capacity to finance this project through the issue of revenue bonds.

I have here a letter that was sent to me by the John Nuveen & Co., municipal bond house of Chicago, Ill., addressed to the Honorable Chairman and Members of the Committee, Committee on Public Works, House of Representatives, Washington, D. C., on June 16, 1953.

With your permission I would like to have that inserted in the record.

Mr. MACK. Without objection, it is so ordered.

(The letter of John Nuveen & Co. dated June 16, 1953, is as follows:)

JOHN NUVEEN & CO.,
Chicago 3, Ill., June 16, 1953.

Re Financing of Priest Rapids Dam project Grant County Public Utility District (Washington)

HONORABLE CHAIRMAN AND MEMBERS OF THE COMMITTEE,
Committee on Public Works,
House of Representatives, Washington, D. C.

DEAR SIRS: We have been asked to write you in connection with the financing of this project, with particular reference to (i) the experience of John Nuveen & Co. in financing public improvements of the various States and municipalities, particularly through the medium of revenue bonds; (ii) the firm's knowledge of the need for additional power supply in the Pacific Northwest; and (iii) the marketability of bonds issued to finance the Priest Rapids Dam project. We will treat these subjects in this order.

I

John Nuveen & Co. was founded in 1898 and accordingly has 55 years of experience exclusively in the underwriting and distribution of State and municipal bonds, both tax secured and revenue secured. The firm is the largest in the Nation handling only this type of public financing and over the last two decades has specialized in revenue-bond financing, a type of financing that has become increasingly important over this period. The main office of John Nuveen & Co. is in Chicago and it maintains other offices in New York, Boston, Cincinnati, St. Paul, and Los Angeles. The firm is active in all section of the Nation and particularly in the middle-western, Southern, and Western States.

John Nuveen & Co. has participated as a major underwriter in the financing of most of the toll-road projects in the various States. It set up and managed the financing of the State of Mississippi highway system through the medium of gasoline tax revenue bonds. The firm has participated in the financings of practically every major municipal utility operation in the Nation at one time or another.

II

John Nuveen & Co. is intimately acquainted with the electric utility business in the Pacific Northwest, particularly in the States of Washington and Oregon. Being involved in the underwriting of almost all public utility district bonds issued in Washington (from 1940 to date), the firm has intensively studied the power supply situation within the State and is well aware of the power shortage problem in this area. A close knowledge of this subject was required for the firm to set up and assume responsibility for the underwriting of the $33,600,000 Chelan County Public Utility District financing of the expansion by contract arrangements with Puget Sound Power & Light Co. of generating facilities in Puget's Rock Island Dam, the construction of which is now about completed. John Nuveen & Co. has no hesitation in joining the many experts in the electric utility business who have called attention to the increasing power shortage existing in the northwestern United States, and the firm is convinced that the market will exist for the utilization of existing and contemplated generation.

III

John Nuveen & Co. is of the opinion that revenue bonds to be issued by Grant County Public Utility District for the purpose of financing construction of the Priest Rapids Dam will be marketable, based upon proper contracts with responsible purchasers for the sale of power and energy generated by the facility at rates which would amortize the bonded indebtedness with customary safety margins, and assuming generally stable and average bond market conditions. The firm does not believe that the large size of the bond issue required to finance the project will constitute a problem which would preclude the marketing of the bonds.

We trust that this information will be helpful to you in appraising the merit of the Priest Rapids Dam project, and we will be happy to cooperate in any way possible to be of further assistance.

Yours very truly,

JOHN NUVEEN & CO.,
By FRANK C. CARR.

Mr. HOLMES. Here is another short letter from Mr. D. Clinton Prescott of the Old National Bank Building, Spokane 1, Wash., who is a representative of the John Nuveen & Co. at Spokane.

With your permission, Mr. Chairman, I would like to submit that.

Mr. MACK. Permission is granted.

(The letter of D. Clinton Prescott, dated June 19, 1953, is as follows:)

SPOKANE, WASH., *June 19, 1953.*

HON. HAL HOLMES,
Member of Congress, House Office Building, Washington, D. C.

DEAR CONGRESSMAN HOLMES: I am writing to you in connection with the efforts of Public Utility District No. 2, of Grant County, Wash., to obtain necessary congressional action to permit them to proceed with their program for the hydroelectric development at Priest Rapids on the Columbia River.

As the agent for John Nuveen & Co., Chicago, Ill., in this area I have, for a good many years, worked with the management and commission of the district on financial matters and participated in many of their conferences on planning for future growth and future requirements. Over this period of time we have done the major part of the financing for the Grant County Public Utility District which, so far, has been for the purpose of providing funds with which to meet the growing demand for distribution facilities to serve the rapidly expanding area brought into production by the Columbia Basin irrigation project. As a result, I have been intimately familiar with the operating plans and results of the district during that period. I am equally familiar with the functioning of the district's operating organization, management, and directing commission, and do not hesitate to state without reservation that I consider this utility to be basically well operated, well managed, and well directed. The district's operating results speak for themselves and its sound planning becomes even more significant when it is realized that its operating problems have been more complicated than would be normal because of the extremely rapid growth of the area served and the large amount of new construction and, therefore, additional financing continually required. The district has never found itself unable to sell its revenue bonds at times when it has needed money for capital expenditures and, with a continuation of its past record of sound operation and planning, its credit standing should continue to improve.

I am writing this to you, Congressman, because I understand there is some question, in the minds of some members of the committee before which this matter is pending, as to the ability of an electric utility operation no larger than the Grant County Public Utility District financing, through the issuance and sale of revenue bonds, a project of the magnitude of that proposed at Priest Rapids.

I would like to point out a fact which is also a truth. The fact that the Priest Rapids operation would dwarf the present operation of Grant County Public Utility District has no bearing whatever upon the development and financing of that project. The Grant County District could be much smaller or even not be otherwise actively engaged in the electric utility business and it would still be possible for the Grant County District to finance Priest Rapids once the feasibility has been established and legal and engineering requirements satisfied and it has been demonstrated that gross income from the operation of the properties will be sufficient to pay debt service requirements, operation and maintenance costs, and establish required reserves.

As a matter of fact, the corporation which held the Priest Rapids assets under American Power & Light Co. certainly did not have the stature that the Grant County Public Utility District has. It was small and it was not an operating company. Yet, as I understand, it had been granted what the Grant County Public Utility District is asking for—the right to proceed with the development of the project.

It is my understanding that the district has the legal rights to proceed as it is planning, engineering and financial assistance of high quality are available to it and in addition the district itself has able management and personnel and sound operating experience.

I hope that this may be of some help in the matter before the committee.

Yours very truly,

D. CLINTON PRESCOTT.

Mr. HOLMES. In the first hearings which took place a few weeks ago, I listened with interest to the testimony of the Army engineers, and since that hearing we have had the Army engineers' report, which you and the committee have, and the insertion of which you have asked for in the record.

Mr. MACK. That is correct.

Mr. HOLMES. In checking on the budget report, you will notice that the budget in outlining the flood control features of this suggested project shows a difference in cost between the 2-dam approach and the 1-dam approach, the 2-dam approach being a tentative suggestion made by the PUD of Grant County, Wash. However, the disparity in the flood-control costs between the single-dam and the two-dam approach in the budget report shows a difference in the report of $110 million versus $73 million. Am I not right, Colonel Paules, in that?

STATEMENT OF LT. COL. E. C. PAULES, ASSISTANT CHIEF OF CIVIL WORKS, OFFICE OF THE CHIEF OF ENGINEERS—Resumed

Colonel PAULES. I believe that is arguable.

Mr. HOLMES. I mean, the budget report was $110 million and the Harza report had a disparity of $13 million—$97 million versus $110 million—between the two-dam plan and the single-dam plan for flood control.

Colonel PAULES. Sir, we have not made an estimate of what the flood control would cost if added to the two dams.

Flood control would cost more if added to the two-dam plan. We have not made an estimate but have only the figures for the total cost.

Mr. MACK. You have recommended in your report if that occurred the PUD should be responsible for that increased cost.

Colonel PAULES. Yes, sir. That is in the recommendation of the Secretary of the Army.

Mr. MACK. And you are also recommending in the report by the Bureau of the Budget that several amendments be added to this bill as proposed by Mr. Holmes and Mr. Magnuson.

Colonel PAULES. That is correct, sir.

Mr. HOLMES. With the permission of the chairman I would like to insert in the record the estimates of the Harza Engineering Co., of Chicago, Ill., concerning the flood-control feature on the 2-dam versus the 1-dam program.

Mr. MACK. Is it brief?

Mr. HOLMES. It is not too long. It is about three pages.

Mr. MACK. We have another hearing at 11 o'clock. We will allow you whatever time is necessary.

Mr. HOLMES. Would you let me insert this in the record complete and give you the high points?

Mr. MACK. It is so ordered, if you desire.

Mr. HOLMES. All right. This is written to Congressman Holmes on June 15.

(The letter and estimates of the Harza Engineering Co. are as follows:)

HARZA ENGINEERING CO.,
Chicago 6, Ill., June 15, 1953.

Subject: Bill No. H. R. 4898.

Hon. HAL HOLMES,
House of Representatives, Washington, D. C.

DEAR MR. HOLMES: We refer to the testimony given by Lt. Col. E. C. Paules, representing the Corps of Engineers, to the Subcommittee on Public Works during its hearing on June 11. Pursuant to a request from Mr. G. A. Smothers, manager of the Grant County Public Utility District, we desire to express, for your information and guidance, our disagreement with certain of the statements made by Colonel Paules.

Colonel Paules stated as follows: "Provision for navigation in the event of a 2-dam development does not offer any unusual problems; but it may be noted that the addition of navigation may cost somewhat more since 2 locks will be necessary instead of 1 lock for a single-dam development."

While the lock for a single-dam development may be a single structural unit, the water elevation difference of nearly 150 feet will dictate that two lifts will be involved, each lift approaching the magnitude of the highest lift constructed to date anywhere in the world. Thus, the overall structure required to provide a total lift of nearly 150 feet is almost certain to be more costly than dividing this lift substantially equally between locks located at two separate projects. This additional cost would result principally from the very high foundation

structure required for the most upstream lift of the two required with a single-site development. It is our opinion that the total ultimate cost for navigation facilities, if required for the Priest Rapids development, will be substantially less costly with a two-site project than with a single-site project.

Colonel Paules also stated, "It is recommended, therefore, that H. R. 4898 be amended to require either:

(1) That the development by the public utility district be in accordance with the plans recommended in House Document 531, 81st Congress, and authorizing the Federal Government to contribute to the public utility district the cost of including flood-control storage in accordance with an agreement to be reached with the Chief of Engineers, Corps of Engineers and the public utility district, or

(2) That any increased cost of adding flood control to the plan of development constructed by the district over the estimated cost of adding flood control in the plan as recommended in House Document 531 should be borne by the public utility district."

We are in disagreement with both of these alternative amendments. Either alternative would, in effect, "legislate" a plan of development. In my testimony at this same hearing I cautioned against such a procedure. It is in order for me to elaborate further upon this philosophy of procedure.

The thesis in both these alternatives is that the plan of development proposed in House Document 531 for the Priest Rapids project represents the best and most practical of engineering plans and, accordingly, should be adhered to. The first alternative would make it mandatory to use this plan for construction purposes. The second would make it mandatory to use this plan as the basis for cost allocations.

As mentioned in my testimony, our engineering studies to date have been limited to an appraisal study adequate only to establish general levels of feasibility. Indeed, the data currently available, including that of the Corps of Engineers and which was basic to the plan presented in House Document 531, was adequate for only that purpose.

The development of an engineering plan to achieve optimum development with maximum economy of the water resources in the reach of the Columbia River under consideration will require vastly more field data and detailed investigations. Adequate project planning of a project of this magnitude will require expenditures of several hundred thousand dollars in contrast to the few thousand so far expended. Though our studies have been thus limited, nevertheless they were adequate to indicate many alternative methods of development which hold promise of cost savings amounting to millions of dollars without sacrifice of overall benefits. Accordingly, we consider that a grave engineering error would be involved in amending this bill to require, through legislation, that the constructing utility follow, in any way, the plan outlined in House Document 531.

Existing Federal law, namely, the Federal Power Act, makes such limiting legislation entirely unnecessary. This act provides, "That the project adopted, including the maps, plans, and specifications, shall be such as in the judgment of the (Federal Power) Commission will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce, for the improvement and utilization of waterpower development, and for other beneficial public uses, including recreational purposes; and if necessary in order to secure such plan the Commission shall have authority to require the modification of any project or of the plans and specifications of the project works before approval."

Since the enactment of the Federal Power Act, it has been our observation that the Federal Power Commission has accomplished a commendable job in complying with both the letter and spirit of this act. Thus the Congress may be assured that the Grant County Public Utility District will provide for optimum development at the Priest Rapids site, and any additional special legislation of this nature is entirely unnecessary.

Either of the alternative amendments proposed by Colonel Paules would likely render the private financing of the Priest Rapids development by the Grant County Public Utility District impossible, thus defeating the major purpose behind bill No. HR–4898. The first alternative would result in it being necessary for Congress to appropriate all or at least a very substantial portion of the flood-control costs before any private banking firm would likely be agreeable to purchasing the revenue bonds for the remainder of the project cost. We are certain that the district desires to proceed with the proposed

construction with all possible speed, whereas we have no knowledge that the Congress is currently interested in providing the appropriations for the flood-control element.

With respect to the second alternative by Colonel Paules, we are of the opinion that the district may not be in a legal position to comply inasmuch as the investment involved, if any, would not bring any direct benefits to the district. Private banking interests then, may not be interested in purchasing the revenue bonds for the construction until this legal cloud is removed either by special enabling legislation or favorable court decisions or both. This procedure could result in either serious delays or impossible requirements, again defeating the purpose of bill No. H. R. 4898.

Further, we cannot agree with the basic thesis of this second alternative presented by Colonel Paules. This thesis was that power should subsidize flood control. The only income which the district will receive from its investment in the project and which, in part, will be available for paying the interest and retiring the revenue bonds, will be that from power sale revenues. It is easily possible for any experienced engineering organization, public or private, to engineer a development for power only at Priest Rapids and, assuming the same basis of finance, to end up with a very comparable construction cost. This is the only construction cost which should be chargeable to power at the site. Such additional costs as may be specifically required to provide flood-control benefits only should be chargeable only to flood control. There is no other honest approach.

We also took note of the inference by Colonel Paules that the proposed two-site development at Priest Rapids would result in less enhancement of adjacent reservoir lands than would the single-site development. Inasmuch as the adjacent reservoir lands in either case are semiarid and precipitous we do not believe that either method of development will enhance the value of such lands.

We hope that you will find the above information of interest and of value to you.

Very truly yours,

HARZA ENGINEERING CO.,
KEITH WILLEY,
Chief Planning Engineer.

PRIEST RAPIDS HYDROELECTRIC PROJECTS—FLOOD CONTROL

The Review Report on Columbia River and Tributaries, prepared by the Corps of Engineers, dated October 1, 1948, subsequently included in House Document No. 531; 81st Congress, 2d session, states in part:

"Flood-control storage at both Priest Rapids and John Day Dams on the lower main stem Columbia River is essentially of standby nature, to be used only after upstream storage becomes ineffective or control is lost on certain principal tributaries, or for quick control of downstream runoff. The incremental cost of this single-purpose storage is high, but its use is essential to the effectiveness of Grand Coulee storage and the plan as a whole. Therefore, benefits are assigned to this storage equivalent to the incremental costs of the flood-control capacities."

As shown in the report, titled "Appraisal of the Priest Rapids Hydroelectric Development," dated April 25, 1953, and supplementary report titled "Two Site Development with Provisions for Flood Control," both by Harza Engineering Co., the incremental costs of flood-control storage at Priest Rapids are:

	Single-site development	2-site development
Flood-control project	$507,000,000	$520,000,000
Power project	358,000,000	358,000,000
Incremental cost	149,000,000	162,000,000

For the single-site development, the net storage above power pool elevation 550 is 1,700,000 acre-feet. However, the Army plan would be to draw down the reservoir in advance of a flood to provide an additional 400,000 acre-feet or a total of 2,100,000 acre-feet. Based on this latter total storage, the cost of flood control would be $71 per acre-foot, which is high.

For the 2-site development, the total of 2,100,000 acre-feet of flood control storage would be provided between the power pool elevation 480 and maximum pool elevation 575. The cost of flood control would be $77 per acre-foot.

Under the Army plan, flood storage (for either single or 2-site developments) would be available and utilized only in the event that predicted regulated flows at The Dallas, 207 miles downstream, would exceed 800,000 cubic feet per second. For the single-site development only, it would be necessary to draw down the reservoir 10 feet below power pool elevation in advance of the flood by means of low-level sluices and the spillway, in order to obtain the 2,100,000 acre-feet of storage.

Assuming the following dams of the main control plan to be in existence:

Hungry Horse
Glacier View
Libby
Grand Coulee
Palisades
Boise (three projects)
Payette (two projects)
Hell's Canyon
John Day

then full utilization of Priest Rapids flood storage would reduce a flood equal to the maximum flood of record (1894) at The Dalles to 800,000 cubic feet per second. This maximum flood has occurred only once in 100 years of record. For the next two smaller and nearly equal floods of record (1876 and 1948), the reservoirs listed above could have reduced the flows at The Dalles to less than 800,000 cubic feet per second, without need for storage at Priest Rapids. Thus even partial use of Priest Rapids flood control storage would not be necessary more frequently than once in about 30 years.

The total project investments for the dam and reservoir at Priest Rapids (exclusive of power facilities) are estimated at $329 million and $266 million for the single and two-site flood control developments, respectively. Table XV shows the comparison of these project investments and costs per acre-foot of total storage (live and dead) for a number of large multiple-purpose dams in the United States. For many of these, the live storage is used for power and navigation regulation, as well as flood control, while at Priest Rapids live storage is for flood control only. From table XV it can be seen that the costs of storage at Priest Rapids are considerable higher than the average.

In view of the infrequent need for utilization of storage at Priest Rapids, it would appear that the annual benefits from flood control would not be commensurate with the relatively high investment required. More economical means of obtaining the desired regulation should be sought.

TABLE XV.—*Cost of storage in multiple-purpose projects (dam and reservoir only)*

Project	Cost (adjusted to 1952)	Total storage acre-feet	Cost per acre-foot
Norris	$77,000,000	2,500,000	$31
Wheeler	66,500,000	1,273,000	52
Guntersville	55,000,000	1,378,000	40
Cherokee	51,500,000	1,565,000	33
Kentucky	206,000,000	7,415,000	29
Hoover	280,000,000	31,140,000	9
Grand Coulee	330,000,000	9,520,000	35
Shasta	160,000,000	4,490,000	36
Fontana	119,000,000	1,160,000	103
Average			41
Priest Rapids project (built in 2 stages):			
Single site	329,000,000	3,300,000	100
2 site	266,000,000	2,570,000	103

Mr. HOLMES. I would like to make clear, after inserting this information in the record, and emphasize the point that the Harza Construction Co. maintains that the 2-dam program for the handling of the flood control would not be more than $13 million more expensive than the 1-dam program.

I am sure that the Army engineers have made reference in their report—and I am subject to correction in that the Army engineers estimated that the 1-dam program would be around $73 million and the 2-dam program around $110 million. Didn't I read that in the report?

Colonel PAULES. I believe the figure of around $73 million is from the Harza report. We would confirm that figure as being within the reasonable range. We have not made an estimate of whether $110 million or more would be required to provide flood control with two dams.

Mr. HOLMES. May I call on Mr. Smothers for that point now? Mr. Smothers, have you something to contribute on that point here?

Mr. SMOTHERS. The figures that are given for the single site development in the Harza construction estimate show the total cost of project with flood control added is $507 million; the total cost of two-site development is $520 million, or a difference of $13 million.

Mr. HOLMES. A difference of $13 million between the two. And there are many other features that would be developed under the two-dam program.

Not wishing to take any further time of the committee now, may I have the permission of inserting this letter of the Harza Engineering Co.?

Mr. MACK. The permission has already been granted.

Mr. HOLMES. That completes my testimony, Mr. Chairman.

Mr. MACK. Mr. Holmes, for the information of some of the members who may not have been present at the previous session, is the Chair correct in stating that the estimated cost of the two dams is $360 million, and it is the present intention of your PUD organization to float bonds up to $180 million to build the first dam, and later another issue of $180 million to build a second dam for this project?

Mr. HOLMES. Yes, sir.

Mr. MACK. The larger dam will generate, or have an installed capacity of about 1 million kilowatts, while the two small dams will have about 500,000 each?

Mr. HOLMES. The two small dams will generate as much electricity or approximately the same amount of electric energy as the one big dam.

Mr. MACK. I think all of the witnesses at the previous hearing testified to that. Is there another project similar to this, operated by the Chelan County PUD on the John Day Dam?

Mr. HOLMES. No. The Chelan County PUD has issued revenue bonds in the total sum of $33,600,000 for the purpose of raising the Rock Island Dam in the State of Washington. And they in turn will be operating that after they build this higher dam on the Rock Island Dam base.

Mr. MACK. What is the installed capacity of Rock Island?

Mr. HOLMES. That I do not know.

Mr. MACK. Are there any other questions?

Mr. SCUDDER. Mr. Chairman, do I understand that this project will be built by private interests and financed with private capital?

Mr. HOLMES. It will be put in by private capital. It is a Public Utility District of the State of Washington, under the laws of the State of Washington.

Mr. SCUDDER. Is there flood control that will require the Federal Government to put up money for this project?

Mr. HOLMES. In flood control?

Mr. SCUDDER. Yes.

Mr. HOLMES. Eventually, yes.

Mr. SCUDDER. I thought there was something for flood control in the application, which would be over and above the amount the power company or the public utility district would expend. Would the Federal Government be participating by putting up Federal money for the construction of these dams?

Mr. HOLMES. Yes.

Mr. SCUDDER. How much are they putting up? I know that in California the P. G. & E. was never subsidized to construct power plants and their dams have contributed greatly to flood control.

Mr. HOLMES. The public utility district would issue these revenue bonds, would finance the construction of these two dams exclusively. If and when they had to have additional flood control, and the Government insisted upon it, then the Government would be obligated for the PUD could not finance that additional flood control.

Mr. SCUDDER. In the construction of the dams, would not that take care of the flood control?

Mr. HOLMES. It certainly would take care of a lot of it.

Mr. DAVIS. How much would it cost the Government, Mr. Holmes?

Mr. HOLMES. Those are the estimates we were talking about in those figures.

Mr. DAVIS. $73 million and $110 million?

Mr. HOLMES. Yes.

Mr. DAVIS. I was a little confused.

Mr. ANGELL. Mr. Chairman, may I ask a question.

Mr. MACK. Mr. Angell.

Mr. ANGELL. Does this bill we are considering provide for the Federal Government's participating in the flood-control feature?

Mr. HOLMES. Yes. The bill provides that the program of flood control should be substantially the same as the whole program throughout the Columbia Basin.

Mr. ANGELL. What does the bill authorize for the expenditure by the Federal Government for flood control?

Mr. HOLMES. No sum.

Mr. ANGELL. Is there any authorization in the bill for flood control?

Colonel PAULES. The bill provides that the development of the site by the public utility district for power shall permit further construction with respect to flood control and navigation, and would authorize the Department of the Army to add flood-control features to any dam constructed at the Priest Rapids site.

Mr. ANGELL. Does that involve additional construction?

Colonel PAULES. Unless the Congress were to provide funds concurrently with the construction it would have to be added at some later date.

Mr. ANGELL. Does that mean you would increase the height of the dam?

Colonel PAULES. Yes, sir.

Mr. ANGELL. Then that should be done at the time the original construction is made. The foundation should be made strong enough for that should it not?

Colonel PAULES. It would be more economical to include it with the original construction.

Mr. ANGELL. Is it contemplated if this project is approved that the Federal Government while it is being constructed will participate in construction for flood control?

Mr. HOLMES. If they find it necessary to do so. The authorization is here, but no specific sum of money.

Mr. ANGELL. It is not usual to have an authorization for expenditure of funds without stating the amount authorized.

Mr. HOLMES. It does not authorize any sum of money. It authorizes that the Army engineers can go ahead and do so. If you go ahead and work this flood control up to the maximum you have to watch out you don't flood into the lower reaches of the Rock Island Dam, 55 miles up the river.

Mr. ANGELL. They already have an authorization for the high dam by the Government.

Mr. HOLMES. Yes, sir.

Mr. MACK. Authorized as a project but not authorized for any certain sum of money.

Mr. HOLMES. That is right.

Mr. ANGELL. Is that correct, Colonel?

Colonel PAULES. It is authorized as part of the comprehensive plan for the Columbia River Basin.

Mr. ANGELL. Under the 308 report?

Colonel PAULES. Yes, sir.

Mr. SCUDDER. I would like to ask you a question. How near are we to reaching a reasonable flood-control program in the Columbia River? We have several large dams under construction. We talk about flood control as being a great part of each appropriation for power development.

How near are we, with the contemplated and authorized projects, to having taken care of the essential flood control in the Columbia River?

Colonel PAULES. Essentially, since the flood of 1948 there has been none, sir, with the exception of the benefit to flood control which the Hungry Horse Dam in Montana will incidentally provide.

Mr. SCUDDER. In other words, flood control is pretty well taken care of?

Colonel PAULES. No, sir. There has been none provided since that time through the construction of any dams in the Northwest which will have a material effect on flood control in the lower Columbia Basin.

Mr. SCUDDER. Are you not charging something to flood control? You are not charging it all to power, are you?

Colonel PAULES. The Dalles, McNary, and Chief Joseph Dams are essentially power, sir. There is no flood control in them.

Mr. SCUDDER. When you say "essentially" is the Government charging enough in the way of power rates to retire and amortize the cost of those projects?

Colonel PAULES. Yes, sir.

Mr. SCUDDER. Entirely out of the sale of power?

Colonel PAULES. I am sure that that will be done, sir, with the exception of a small percentage at the McNary and The Dalles Dams which will be allocated to navigation.

Mr. SCUDDER. Do you get any revenue for navigation?

Colonel PAULES. Not as a dollar return.

Mr. SCUDDER. Nothing for the operation of the locks?

Colonel PAULES. No, sir. That would amount to approximately 10 percent of the McNary and the Dalles. At the Albeni Falls project there is a small benefit for flood control. Its primary purpose is for the increased storage for downstream power projects. The allocation to flood control there is approximately $1 million out of a $31 million cost.

Mr. SCUDDER. In all these projects great stress is always made that we are in great need of flood control. We built the Grand Coulee Dam and they say there is no flood control in that. Now we are building other dams and they say there is no flood control in them. This flood-control gimmick seems to be used to subsidize power projects.

I am aware we should abate floods, and I feel we are controlling floods through these dams. It would appear the general taxpayer is assuming more than his share of the costs.

Mr. ANGELL. Will the gentleman yield?

Mr. SCUDDER. Yes.

Mr. ANGELL. It is true, is it not, Colonel, that a dam constructed for flood control and a dam constructed for power are directly opposite to one another in their purpose? In other words, for flood control you have to keep the basin down and the storage space available so that if a flood comes you can take care of the water; but for hydroelectric power you have to keep it full while the water is high in order to preserve it for firm power?

Colonel PAULES. That is true in part of the area. If I may explain on the map, in the upper reaches we have storage projects in the plan which will be filled with runoff as the snows melt and we have rains, down through Grand Coulee and through Hells Canyon. Those projects will be filled based on predictions of runoff. We try to fill those based on the best overall comprehensive use of the water so that they will be just filled as the last water comes in.

That will prevent waste of water when it is later needed for power and irrigation.

Downstream from Grand Coulee, once the waters have gotten down here into the lower river, the only means we have for control of floods are levees through this lower river area, and with the storage we will get at the reservoirs at the Priest Rapids, John Day, and one other. Those three reservoirs would have storage for control of floods.

It is not a very good analogy but it is like a football team on defense. The upstream reservoirs are the line, and the backfield—the safety men—are the flood-control reservoirs on the lower river. So we have to fill these lower reservoirs with the floods expected and passing The Dalles. The control of floods to 800,000 cubic feet per second at The Dalles, must be done with reservoir storage at John Day and Priest Rapids and the other dams here to be provided on the Middle Snake River.

Mr. MACK. Are there any further questions?

Mr. NEAL. Which is the more expensive of the two? The flood-control projects at the headwaters, or the cost that goes into the

initial construction of the dams downriver with the contemplated flood-control service that they will afford?

Colonel PAULES. The flood storage in each of the projects down here will cost more per project than in the upper ones. The upper projects have an incidental value for flood control by control of the waters as the runoff occurs. The more direct flood flow would be down here, and we must have the storage for flood control which is planned to be approximately 6 million acre-feet, roughly 2 million acre-feet in this Middle Snake River area, 2 million acre-feet at John Day, and 2 million acre-feet at Priest Rapids.

Now, each of these projects, Priest Rapids and John Day, is a large power project in addition. Our tentative estimate is that power alone at Priest Rapids would cost about $285 million, or thereabouts. That is, roughly $75 million to $80 million less than the project including flood control.

Mr. SMALL. Mr. Chairman.

Mr. MACK. Mr. Small.

Mr. SMALL. When you say the downriver reservoirs are for the retention of water, they are not there now, are they? They are yet to be constructed. Is that true?

Colonel PAULES. Yes, sir. They are part of the plan to control floods through the lower river.

Mr. SMALL. How many acres did you say you had in the reservoirs?

Colonel PAULES. In John Day 2 million acre-feet, in Priest Rapids another 2 million acre-feet, and an effective 2.3 million in Hells Canyon or substitutes in the Middle Snake River and tributaries.

Mr. SMALL. So that they are not now being used?

Colonel PAULES. None of those are constructed. No, sir.

Mr. SMALL. What is on the ground? Is it pasture ground, or has it been utilized for anything, or is it wasteland?

Colonel PAULES. This is generally wasteland below Rock Island Dam, I believe. In the Priest Rapids Reservoir area there is some potential agricultural land development from Grand Coulee irrigation. The John Day flood storage may adversely affect two towns, Arlington and Umatilla, in that reach of the pool. At Hells Canyon there is no development.

Mr. MACK. Any other questions?

Mr. BECKER. I want to get back to Mr. Holmes. Your bill, as I read it, is primarily for hydroelectric power.

Mr. HOLMES. Yes, sir.

Mr. BECKER. To get it started.

Mr. HOLMES. Yes, sir.

Mr. BECKER. Your bill might later contemplate, but does not contemplate flood control now, and nothing but hydroelectric power?

Mr. HOLMES. That is the main thing, but it gives authorization for flood control later on. May I say that I urge this committee to give this project the most serious consideration; and I call to the attention of the committee that when the Grant County PUD does have to go before the Federal Power Commission for the issuance of a license, all of these matters have to be approved, and the Federal Power Commission sits as a final judge and jury in relation to the project.

I think that the Grant County PUD should be granted the privilege of going before the Federal Power Commission for the license.

Mr. MACK. Thank you, Mr. Holmes, for your testimony. Congressman Magnuson, have you additional information over what you gave at the last session of the committee?

Mr. MAGNUSON. Mr. Chairman, I do not think I care to add anything to the previous statement I made, especially in view of the shortness of time.

Mr. MACK. Thank you. I will call Mr. Glenn Smothers, manager of the Grant County PUD organization. This will be additional testimony to augment the testimony you gave here previously?

STATEMENT OF GLENN SMOTHERS, MANAGER, PUBLIC UTILITIES DISTRICT NO. 2, GRANT COUNTY, EPHRATA, WASH.—Resumed

Mr. SMOTHERS. That is right.

Mr. MACK. All right, Mr. Smothers.

Mr. SMOTHERS. At the previous hearing, certain points were raised which I feel were not clearly answered at the time; with the consent of the committee, I would like to further discuss them now.

Also since the hearing, certain other questions have been raised, upon which I would like to comment.

Question No. 1. Will your utility be governed by the terms and conditions of construction and operation imposed by the Federal Power Commission in issuing a license?

Answer. Yes. Section 6 of the act says:

> * * * Each license shall be conditioned upon acceptance by the licensee of all the terms and conditions of this act, and such further conditions, if any, as the Commission shall prescribe in conformity with this act.

Question No. 2. What assurance do we have that you will complete the project, if it is developed on a multidam basis?

Answer. The Federal Power Commission is obliged, under the act, to require the complete development of the plan (sec. 6)—

> * * * which it finds and determines is best adapted to develop, conserve, and utilize in the public interest the water resources of the region.

It is further required that—

> A licensee shall commence the construction of the project work within the time fixed in the licenses. * * * Shall thereafter in good faith and with due diligence prosecute such construction, and within the time fixed in the license, complete and put into operation such part of the ultimate development as the Commission shall deem necessary. * * *

The Commission, of course, will assure itself of the ability of a licensee to meet these requirements before a license could be issued.

Question No. 3. What assurance do we have that, if built by your utility, that power from this dam would be sold at rates which would not discriminate against other States, areas, or utilities, in favor of your utility?

Answer. The law of the State of Washington requires our utility to sell power at rates that are (sec. 19) "fair and nondiscriminatory." In addition to this, in accepting license, our utility would be bound by the terms of the Federal Power Act, which states:

> That as a condition of the license, every licensee hereunder * * * owning or operating any project and developing, transmitting, or distributing power for sale or use in public service shall abide by such reasonable regulation of the services to be rendered to customers or consumers of power and of rates and charges of payment, therefore as may from time to time be prescribed by any

duly constituted agency of the State in which service is rendered or the rate charged. That in case of the development, transmission, or distribution or use in public service of power by any licensee hereunder, or by its customer engaged in public service with a State which has not authorized and empowered a commission or other agency or agencies within said State to regulate and control the services to be rendered by such licensee or by its customer engaged in public service, or the rates and charges of payment therefor * * * it is agreed as a condition of such license that jurisdiction is hereby conferred upon the Commission (sec. 2011).

In other words, within the State, and in accepting a license from the Federal Power Commission, we would be subject both to our own laws and to the rules of the Federal Power Commission.

The act further states:

That when said power or any part thereof shall enter into interstate or foreign commerce the rates charged and the service rendered * * * shall be reasonable, nondiscriminatory, and just to the customer, and all unreasonable, discriminatory, and unjust rates or services are hereby prohibited and declared to be unlawful.

The act further states that (sec. 205a):

All rates and charges made, demanded, or received by any public utility for or in connection with the transmission or sale of electric energy subject to the jurisdiction of the Commission, and all rules and regulations affecting or pertaining to such rates or charges shall be just and reasonable, and any such rate or charge that is not just and reasonable is hereby declared to be unlawful.

Question No. 4. Has your utility considered the problem of handling migratory fish?

Answer. We have, and we fully recognize that we must meet the requirement of our State laws and the terms and conditions set forth by the Federal Power Commission in issuing a license.

Question No. 5. Will the Federal Government be compensated for lands owned by it within the reservoir area?

Answer. Yes. The acquisition of and payment of a fair price for all lands within the project boundary has been included in our construction-cost estimates.

Question. Is it true that your utility intends to develop the power of the Priest Rapids site by constructing two dams?

Answer. Not necessarily. The Grant County Public Utility District made application a year ago before the Federal Power Commission for a preliminary permit authorizing the district to carry on the investigations necessary to obtain the data needed in filing application for license for the construction of power facilities of Priest Rapids Dam in general accordance with the plans of the Corps of Engineers. At that time the project was not included in interagency schedules. Action of the Federal Power Commission on this application is being held up pending action of Congress on this legislation now before you.

In the meantime, some problems have arisen which should be considered. First, engineers at the atomic plant at Hanford, a few miles downstream, expressed concern over the impoundment of a large volume of water so short a distance upstream from the Hanford works, claiming flood hazard in case of enemy action.

Fish and Wildlife Service objected to the construction of a 150-foot dam, claiming that there was no precedent for passing migratory fish over so high a dam. Concern was also expressed over the fact that lock structures required to allow navigation might be so expensive as to preclude any possibility of river transportation to Wenatchee.

Because of these objections, alternate plans for the development of Priest Rapids power were considered. Of these, the two-dam scheme was presented as being the one most likely to meet the requirements of all regional benefits. It eliminates the flood danger to Hanford, brings the height of dams within the scope of experience in the passing of migratory fish, reduces the cost of navigation facilities, and provides for the future installation of flood-control facilities which will produce 2,100,000 acre-feet of flood-control storage at a 15-foot lower elevation than would be required under the 1-dam plan, thereby reducing the flooding which would occur during extreme flood conditions at the Puget Sound Power & Light Co. plant at Rock Island.

However, we accept the view that whatever plan is adopted, it must be the plan that best fits in with the comprehensive plan for the Columbia River Basin. The optimum use of the reach of the river between Priest Rapids and Rock Island is what the public utility district wants to accomplish. This will require intensive study of all possible schemes as a part of the project-planning program which must precede design and construction.

For this reason, we take the position very strongly that this proposed legislation should in no sense attempt to narrow down the engineering for Priest Rapids to any one scheme. The Federal Power Commission will then be able to consider more than one plan and, by weighing the importance and cost of each phase of the development with the importance and cost of every other phase, arrive at the plan which will produce the optimum of benefits in the development, conservation, and utilization in the public interest of the water resources of the region.

It has been suggested that this bill under consideration might constitute a deviation of policy of the Federal Power Act in that it names the recipient, or recipients, of a license.

This might be the case, if the bill under consideration were one which completely deauthorized the project. However, in this case the bill merely modifies an existing authorization by granting a 2-year option to a utility which has expressed an active interest in the development of the project, and which, besides being the only local agency so far to have expressed its interest in relieving the Northwest power shortage by constructing the project immediately, has spent several years and many thousands of dollars in the development of its plans.

It is hoped that the committee will see fit to protect this investment.

It has been suggested that this bill be amended to provide that the authorization return to its present status immediately, in the event that application for license is denied by the Federal Power Commission.

To this we have no objection.

It has also been suggested that the bill be amended by adding the words, "and navigation" to page 2, section 2, line 14, immediately following the words, "flood control" and preceding the word "features."

To this we have no objection.

The Corps of Engineers have suggested certain revisions of the bill. They recommend (1) that the bill require the development be in accordance with the plans recommended in House Document No. 531, or the 1-dam scheme; or (2) that the district be assessed the difference, if any, in the cost of adding the flood-control feature to

the 2-dam scheme over the estimated cost of adding flood control to the single dam.

With reference to the first proposal, we would object on the grounds outlined previously, that the engineering of the project should not be narrowed down to any one plan, thereby preventing the FPC from giving proper consideration to the interets of Hanford flood dangers, fish and wildlife, navigation, and other interests which should be considered if general public interest is to be protected.

With reference to the second proposal, the inclusion of such requirement would probably preclude the Grant County Public Utility District, or any other municipal corporation from participating in the construction of the project, since it would involve payment of money for facilities not used or useful in the development, transmission, or distribution of power or water—the only business in which the district may legally engage. Also, it ignores other benefits to the Federal Government which might be attained by an alternate scheme, such as reduced costs of navigation facilities, savings to the Department of Defense in protection of the Hanford works, savings in project protection and power losses at Rock Island Dam, and so forth. We feel that the FPC, an agency created by Congress, and charged with the responsibility of insuring the maximum development of the river with relation to all its potentials, and in the best public interest of the region as a whole, will and should stipulate such terms and conditions in the issuance of a license as it deems necessary to protect the interests of the Federal Government, the general public, and the users of the power to be generated by the dam.

Gentlemen, the Pacific Northwest needs more power now.

A start must be made on a major dam next year or not later than 2 years from now, if a disastrous power deficit is to be avoided.

Grant County Public Utility District, a nonprofit corporation, realizing that it will gain no more benefits from the development of Priest Rapids Dam than any other member of the power pool is ready and willing to make the expenditure necessary for the development of a plan for submission to the FPC for license.

This can be done early enough to prevent interference with any plans the corps may have for the development of the project.

We hope you will give us, and the people of the Northwest, this opportunity.

Mr. MACK. Mr. Smothers, I notice in Mr. Holmes' bill the reference to Public Utility District No. 2 of Grant County. Have you two utility districts in that county?

Mr. SMOTHERS. No, sir. Only one. It was included in the area served by No. 2 when No. 2 was organized.

Mr. MACK. I have heard, or I have read, the Seattle Public Power and Tacoma Power & Light were both interested in this project. Have there been discussions with them that they should take over the power which you produce at this proposed site?

Mr. SMOTHERS. Yes, there was. I think during the previous testimony I submitted a letter from both Seattle and Tacoma.

Mr. MACK. But the Grant County Public Utility District would be sole owner of the project and would wholesale the power from that location. Is that correct?

Mr. SMOTHERS. That is the present intention.

Mr. MACK. I was a little bit interested in your statement on page 5, second paragraph, in which you make reference to the second proposal. It is my understanding, if the two dams are built, that the cost will be quite an additional for handling the flood-control feature. Is it your position that you do not believe the Grant County PUD should provide the money to take care of this extra flood control?

Mr. SMOTHERS. I do not believe that the Grant County PUD can spend money for flood control.

Mr. MACK. In other words, if flood control costs more in the two dams, you would expect the Federal Government to put up that additional money?

Mr. SMOTHERS. I think it would be necessary that there would be some other method of financing at least developed than through the sale of revenue bonds.

Mr. MACK. When you say it cannot do this do you mean there is some legal obstruction in the State preventing you from doing it?

Mr. SMOTHERS. Yes. Our control of the expenditure of funds would require that we could only spend funds that would go into a dam. They would have to go into a dam and produce power. Flood control, as has been pointed out, is completely separate and apart from power development. We know that we have to make provision for navigation in a power dam. We can expend a certain amount of funds for that.

We know that fish have to pass over a dam. That becomes a part of the cost of the dam.

But the investment that would be made on top of a power dam, that would be completely in addition to that dam. I am not an attorney, but my interpretation of our statute is that we could not spend the funds for that.

Mr. MACK. It is generally agreed, is it not, that the building of the two dams will require the expenditure of a larger sum than the building of one dam?

Mr. SMOTHERS. I think that is a figure of something like $13 million.

Mr. HOLMES. If I remember correctly, it is the difference between $100 an acre-foot and $103 an acre-foot between the two dams and the one dam.

Mr. DONDERO. Mr. Smothers, what is the valuation of Grant County?

Mr. SMOTHERS. You mean the tax valuation?

Mr. DONDERO. Yes. In which this project is located.

Mr. SMOTHERS. I am sorry. I cannot answer that. Grant County is—more than half of the Columbia Basin irrigation project is in Grant County, and it changes so rapidly I cannot keep up with it.

Mr. DONDERO. What is the population?

Mr. SMOTHERS. 30,000.

Mr. DONDERO. And the PUD takes in the whole county?

Mr. SMOTHERS. Yes.

Mr. DONDERO. Whatever the valuation and population is, it would have to assume the obligation or burden of this $360 million bond issue?

Mr. SMOTHERS. No, sir. We are speaking entirely of revenue bonds, which are a lien only on the revenues of the project being financed.

Mr. DONDERO. And they would not be the obligations of the State or county?

Mr. SMOTHERS. That is right.

Mr. ANGELL. Mr. Smothers, does Grant County extend across the Columbia River at the site where this dam is to be constructed?

Mr. SMOTHERS. No. The river is the boundary between Grant County and Yakima County.

Mr. ANGELL. So part of the river is not within the PUD district?

Mr. SMOTHERS. Yes. Most of the dam would be within Grant County.

Mr. ANGELL. Is the Columbia River at that point all within the State of Washington?

Mr. SMOTHERS. Yes.

Mr. ANGELL. How far from the site is it to the State of Oregon?

Mr. SMOTHERS. I would say—let me see. I would say down to McNary.

Mr. ANGELL. If this dam were constructed by the Federal Government, then the power would go into a pool in which all of the distribution area of the Pacific Northwest would be able to participate; would it not?

Mr. SMOTHERS. It would be distributed by the Bonneville Power Administration if it were constructed by the Federal Government. However, the power from this dam will go into the pool and become a part of the pool, whether it is built by Grant County PUD or not.

Mr. ANGELL. If it is built under this PUD it will be under the sole control and jurisdiction of the PUD itself. In other words, they could sell it all to Seattle and Tacoma if they want to. There is no provision in the law that prevents them from doing it; is there?

Mr. SMOTHERS. No.

Mr. ANGELL. So that would be an absolute control. And they could sell it all to Seattle and Tacoma if they want to, and if Portland should want some energy from the project, the PUD could tell Portland to go and jump in the lake.

Mr. SMOTHERS. In answer to that, Seattle and Tacoma can only economically buy the amount of power they could use.

We know from our discussions we have had in the area—and we have had a lot of them concerning the distribution of this power, and where it might be used, because that will be important when we sign our power contracts, which we will have to sign before we start construction and issue revenue bonds—Seattle and Tacoma will probably require somewhere between 300,000 and 450,000 kilowatts. They would be willing to sign contracts for that.

There is a shortage in the Portland area at the present time of possibly 150,000, because with McNary coming in it will relieve that to a great extent. There is some shortage in the Spokane area. It is my understanding that possibly the Atomic Energy Commission will require some additional power.

However, the power that is delivered into the pool from Priest Rapids Dam, whether it is delivered in Walla Walla or Yakima, or wherever it might be, will relieve the load that otherwise would be on the Federal system, and make that much more power available from it to any other locality.

Mr. ANGELL. But there is no law or legal provision requiring this power to be turned into the pool. The Grant County PUD would

be under complete control of it and could do what it likes with it, and could put it into the pool or not.

Mr. SMOTHERS. There is no law that would require any utility to put their power into the pool.

Mr. ANGELL. But if the power is developed by the Federal Government, the Federal Government will look after all interests—Oregon, Washington, and Idaho, and other districts in the distribution area.

If this should be developed by Washington alone, then the Portland area might suffer. This Grant County PUD is a municipal corporation of the State of Washington, and is an agency of the State of Washington, and, in effect, is the State of Washington.

The State of Washington is given complete control over this power which should belong to the whole area.

Mr. SMOTHERS. The power pool is an organization——

Mr. ANGELL. But you are not required under your setup to put power into the pool. It is your power and you can do as you please with it. You can stop your generators and not generate a kilowatt if you wanted to. The State of Oregon has no control over it, and the Federal Government would have no control over it, only Washington would have control over it.

Mr. SMOTHERS. I am afraid I would not have for very long if I did that, because I have to sell that power in order to amortize the bonds that are issued.

Mr. ANGELL. In passing this legislation we are looking at the legal effect, and what can be done—and not what probably will be done. I am not saying you would close down your generators, or leave out Portland. But what I am saying is we are giving the Grant County Public Utility District absolute control over a great resource which belongs to the whole area, and we are giving it to this one little county to do with as it sees fit, and leave the rest of the area out of the picture.

Mr. DAVIS. Will the gentleman yield?

Mr. ANGELL. Yes.

Mr. DAVIS. Mr. Smothers, where does Grant County get its power now?

Mr. SMOTHERS. We buy it from the Bonneville Power Administration.

Mr. DAVIS. How much will the capacity be of the 1 big, or the 2 plants proposed?

Mr. SMOTHERS. About 1,100,000 kilowatts, or 1,200,000 kilowatts.

Mr. MACK. Installed capacity.

Mr. DAVIS. Does that county of 30,000 population require that much power?

Mr. SMOTHERS. Not at the present time. However, as I mentioned before, it is a part of the Columbia Basin and irrigation development, and the population estimates at the present time are running somewhere around 250,000 to 300,000 for that county.

Mr. ANGELL. Will the gentleman yield?

Mr. DAVIS. Yes.

Mr. ANGELL. How much power does Grant County use now?

Mr. SMOTHERS. At the present time about 40,000 kilowatts.

Mr. ANGELL. And what is the total capacity of this project?

Mr. SMOTHERS. One million and two hundred thousand.

Mr. ANGELL. So you use 40,000 out of 1,200,000 to be developed. So, a very small portion of this power will be utilized in the Grant County Public Utility District. In other words, the public utility district would be really a utility and marketing agency in the development of this power and the marketing of it, not for is own use, but as an investment?

Mr. SMOTHERS. Not as an investment, since we are a nonprofit corporation. It is an investment in the Northwest, yes. We feel that we are the only agency that can step in and augment the power development of the Northwest. We can do that because we are empowered to issue revenue bonds which, as you have heard, are marketable.

We control this dam even though it is a dam that will dwarf the operation of the Grant County Public Utility District, and bring that amount of kilowatts into production for the Northwest. We will sell it wherever we can.

Mr. ANGELL. In the authorizing of these public utility districts, is not the purpose to permit the public utility district areas to organize under the Washington law so that they might provide power for their own use?

Was it contemplated that they could go into the power business, producing and marketing power, and where a public utility district needed 40,000 kilowatts for its own use, to develop more than a million kilowatts for sale? In other words, what they use is a mere drop in the bucket.

The whole proposition is the development of power and the disposition of it in the area; but under the law you will take control over that power to the exclusion of the State of Oregon, or Idaho, or any part of the area which needs the power, and it is put completely in your control and in your hands forever.

Mr. MACK. May the Chair interpose this thought: We have only about 5 minutes at the maximum, because we are committed to hear a California project. Mr. Bell is here to testify. Mr. Bell, will you be satisfied to insert your remarks in the record?

Mr. BELL. Mr. Chairman, I testified before. I have no remarks.

Mr. DAVIS. I have one observation. I think our colleague, Mr. Angell, has gone to the meat of the matter. If the population of 30,000 now demands 40,000 kilowatts, and they expect over a period of years an increase to 250,000, then 8 times 40,000 would only be 320,000. They are going to develop over 1 million now. So it appears to be a marketing project to sell the power somewhere, to somebody.

Mr. SCUDDER. Mr. Chairman, I take exception to the statement that it is unfair for this public utilities district that will be financing this project to dispose of the power as they see fit. Will your public utility district pay income tax to the Federal Government if you make a profit?

Mr. SMOTHERS. We do not make a profit. We are a nonprofit corporation.

Mr. SCUDDER. Then when you sell your power to a private power company, they are going to make a profit; are they not?

Mr. SMOTHERS. Yes.

Mr. SCUDDER. Then they would be paying taxes to the Federal Government. So we would be broadening our tax base if the operation which you are contemplating was developed by your organization,

because you would be selling to a private distributing agency and they, in turn, would be paying taxes to the Federal Government.

Mr. SMOTHERS. That is right.

Mr. SCUDDER. That would broaden our tax base. The other thing that I would like to clear up is that you testified that about 10 percent of the cost of projects along the Columbia River are charged to flood control, whereas the figures I have been able to get during this hearing show that you will have to provide 25 percent for flood control if they insist you go along according to plan, while at many of the Government dams along the river they do not provide for flood control.

Mr. SMOTHERS. That is right.

Mr. SCUDDER. We are just kidding ourselves about cheap power, when we eliminate all the expense costs and interest and taxes. Of course, they can have cheap power rates but somebody else pays the bill.

I cannot see anything wrong with this development; if they have the ability to develop power and sell it then the Federal Government will receive additional income. I think it is a good proposition for the Congress to permit the development so as to increase Federal income.

Mr. BECKER. I heartily applaud what Mr. Scudder says. The way I look at your project, you are going to develop 1 million kilowatts that will be sold in that area and be paid for by revenue-bond income.

Mr. SMOTHERS. That is right.

Mr. BECKER. In other words, there is no charge to the citizens of the State of New York as there is for the building of the McNary power project, which we pay for in New York and all over the country. That is the great difference between what Mr. Angell and Mr. Scudder said.

Yours is going to be paid out of revenue bonds.

Mr. SMOTHERS. That is right.

Mr. BECKER. Out of profits to be made from the sale of hydroelectric power that you develop there.

Mr. SMOTHERS. That is right.

Mr. BECKER. On the other hand my State is not interested because you are going to pay for it locally and sell it. But when we built the McNary Dam and the Hoover Dam and the others the State of New York is paying for the sale of cheap power that we do not get any benefit from in the State of New York in the way of taxes, or in any other way.

So I say I am heartily in accord with the idea that you sell your power and you wholesale it.

Mr. MACK. You have 2 minutes left.

Mr. BECKER. I would like to finish my statement. In your district your public utility district only requires 40,000 kilowatt hours, and the rest is wholesaled somewhere else, and you use that income to retire your revenue bonds.

Mr. NEAL. This is a nonprofit organization. What becomes of the earnings of the power company after those revenue bonds have been entirely retired?

Mr. SMOTHERS. The cost of power is reduced until we are operating on a cost basis.

Mr. MACK. Mr. Stauffer.

Mr. STAUFFER. Navigation has been mentioned here. How far up the Columbia River is there navigation today?

Mr. SMOTHERS. About 25 miles down.

Mr. STAUFFER. Below this dam?

Mr. SMOTHERS. Below this dam.

Mr. STAUFFER. Has the river ever been navigable above this dam?

Mr. SMOTHERS. No.

Mr. STAUFFER. Is it necessary to include navigation in here, which would be a charge on the Federal Government?

Mr. SMOTHERS. It was not intended at the present time to include navigation facilities in the dam; merely to make provision for future additions if and when.

Mr. STAUFFER. Navigation is a charge to the Federal Government.

Mr. SMOTHERS. Yes, but there would be no expenditure by the Federal Government at this time.

Mr. STAUFFER. At this time.

Mr. SMOTHERS. There would be later on.

Mr. STAUFFER. The only reason they put navigation in a lot of the public projects is to bring them under the Constitution. That is all.

Mr. MACK. Thank you, Mr. Smothers, for your testimony before the committee today.

(Whereupon, at 11:15 a. m., the hearing on the above-entitled matter was concluded.)

PRIEST RAPIDS HYDROELECTRIC PROJECT

MONDAY, FEBRUARY 1, 1954

HOUSE OF REPRESENTATIVES,
COMMITTEE ON PUBLIC WORKS,
SUBCOMMITTEE ON FLOOD CONTROL,
Washington, D. C.

The subcommittee met, pursuant to call, at 10:10 a. m., in room 1302, New House Office Building, Hon. Russell V. Mack (chairman of the subcommittee) presiding.

Mr. MACK. The meeting of the Subcommittee on Flood Control of the House Public Works Committee will be in session.

We have held several hearings on H. R. 4898 by Mr. Holmes, of Washington, and H. R. 4899 by Mr. Magnuson, of Washington. These are identical bills. During the former hearings some members of the committee, including myself, questioned whether the base was broad enough for this project, namely in that a county of 27,000 people which would use only 3 percent of the power generated by the project was asking for the deauthorization of this project so that they might apply for a permit to build it.

Since that time I understand a number of other county PUD organizations and city public power organizations have joined with Grant County in becoming proponents and sponsors of this project. This removes one of the strong objections that some members of the committee had to this proposed legislation.

Today we reopen the hearings to take further testimony. We now call upon Mr. Holmes as the first witness.

STATEMENT OF HON. HAL HOLMES, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WASHINGTON—Resumed

Mr. HOLMES. Mr. Chairman, you have before you H. R. 4898, as you say in your introductory remarks. I would like to pass out some copies of some clarifying language to the individual members that we can use along with this testimony. Since the last hearings you mentioned the fact that we had broadened the base. If you will take the bill H. R. 4898 and the copy of the amendments that I have given you and look at the first section you will see the new words inserted are in capital letters all through this copy, as compared to the original bill.

You will note in the first section of the copy I have given you that the words to be inserted are—

or by any division, subdivision, agency, or commission of the State of Washington of which it may be a member. * * *

That goes on for the rest of the sentence.

We have here a summary of the various public utility districts and cities and towns that are interested in this legislation in the State of Washington. Since this compilation that I have here that I would like to insert into the record, there have been three more public utility districts added, namely, Clark County, Wash.; Skamania County, Wash.; and Franklin County, Wash. It shows that this covers a population with these new additions of approximately 600,000 people.

May I insert that?

Mr. MACK. Yes. Without objection, it may be inserted in the record.

(The document referred to is as follows:)

Operating agency No. 1 of the Washington State Power Commission

	Customers	Kilowatt-hours	Kilowatts	1950 census
Public utility districts:				
Benton	7,785	96,948,200	23,594	51,370
Chelan	12,079	1,110,803,182	141,098	39,301
Cowlitz	19,999	389,516,933	68,340	53,369
Douglas	4,300	125,000,000	20,928	10,817
Ferry	1,240	12,800,042	2,920	4,096
Grant	8,412	156,230,594	31,388	24,346
Grays Harbor	20,037	217,123,287	44,664	53,644
Kittitas	526	5,750,000	1,200	22,235
Klickitat	4,630	53,400,042	11,805	12,049
Lewis	11,870	97,122,120	21,131	43,755
Pacific	7,088	65,766,489	14,193	16,558
Pend Oreille	2,068	42,903,441	7,614	7,413
Snohomish	46,092	517,764,737	84,545	111,580
Wahkiakum	1,338	11,226,246	2,900	3,835
Cities and towns:				
Blaine	820	4,400,400	1,111	[1] 2,460
Cashmere	1,010	9,029,100	2,167	[2]
Ellensburg	3,000	35,000,000	7,000	[2]
Grand Coulee	953	16,611,624	4,416	[2]
McCleary	491	1,265,000	3,127	[2]
South Cle Elum	200	2,913,516	[1] 850	[2]
Sumas	300	1,400,000	450	[1] 912
Total	154,238	2,973,574,953	495,441	457,740,000

[1] Estimated.
[2] Incomplete

Mr. MACK. That is compared to the original proposal that a county of 30,000 people have the right to obtain this?

Mr. HOLMES. Yes, sir.

Mr. MACK. How much power do these countries now use?

Mr. HOLMES. There is a summary in the sheet which is without these three additional counties.

Mr. MACK. Those three counties contain about 100,000?

Mr. HOLMES. Yes. Without those three there were 154,238 customers, and some 500,000 people and if you add another 100,000 population there would be conservatively another 25 to 50,000 customers, and they use on the original compilation around 2,973,574,953 kilowatt hours.

Mr. MACK. That is without Clark County?

Mr. HOLMES. Yes. And without Franklin County and without Skamania County.

Mr. MACK. Now turning over the page on your copy and keeping your original bill, H. R. 4898, before you——

Mr. HOLMES. The reason why you have these insertions is that you remember the reports were favorable on H. R. 4898 in the last meetings we had here except that there were some questions raised by the Army

engineers. Since that time we have had many meetings with the Army engineers and with the manager of the Grant County PUD and their representative, Mr. Bell, with him here—Mr. Smothers and Mr. Bell—and they have gone over the clarifying language, noting it in typewritten capital words in the typewritten copy I have given you.

This clarifying language has not affected the substance of the bill, but is acceptable to the Army engineers. Through the various meetings we have had with them we understand they wanted to insert this clarifying language. You will note under section 2 at the end of the word "Act" they have inserted:

The Priest Rapids Reservoir site shall be developed to utilize the optimum capabilities of the site as a part of the comprehensive plan for economically feasible control and utilization of the water resources for flood control, navigation, power, and other beneficial purposes. Before a license is issued, an applicant for a license shall submit a report on the details of its plans for development to the Federal Power Commission with particular reference to the integration of the proposed Priest Rapids development as a part of the comprehensive plan.

General Itschner is here, and if it is your pleasure perhaps you would want a comment from General Itschner as to the clarifying language we are submitting as an amendment to the original bill.

Mr. MACK. Before we do that, Mr. Holmes, this language means it will be the province of the Federal Power Commission to see that the Federal Government's interests are safeguarded in relation to navigation and flood control, and also as to facilities for getting the fish upstream.

Mr. HOLMES. Yes, sir. It is my understanding. Is there any comment you would like to have from General Itschner on that?

Mr. MACK. I thought we would finish with you and then call General Itschner.

Are there any other questions?

Mr. ANGELL. Mr. Chairman.

Mr. MACK. Mr. Angell.

Mr. ANGELL. What security is given for the making available of the power that is developed for the whole area rather than just to those who are concerned with the development of the project?

Mr. HOLMES. With the wording—

* * * plans for development to the Federal Power Commission with particular reference to the integration of the proposed Priest Rapids development as a part of the comprehensive plan.

Mr. ANGELL. Do I understand then it can be assumed from that that the power will be made available like other power from the Government projects on the Columbia River, for all of the users in the area?

Mr. HOLMES. Yes, sir. With specific reference——

Mr. ANGELL. Whether it is in Oregon, Idaho, or any other place?

Mr. HOLMES. Yes, sir. With specific reference to the fact that this dam likewise is equidistant between the heavy load centers of Spokane, Portland, and Seattle, and the operating power unit, with all of the widened base of people that are involved, would certainly want to see to it that there is a wide distribution of the kilowatts.

Proceeding with new wording under section 3, if you will look at your copy, there is some insertion of words to make it read:

* * * and shall make recommendations with respect to such plans to the Commission with particular regard to flood control and navigation.

That gives further clarifying language to the jurisdiction of the Army engineers.

Mr. MACK. Are there any questions on that? You may proceed, Mr. Holmes.

Mr. HOLMES. Now, section 4 of the original bill becomes section 7 of the amended bill. We are doing this to comply with the clarifying language that the Army engineers felt was necessary and would like to see in the bill. So section 4 in the typewritten copy is a new section and reads like this:

> The license may provide for the addition of navigation locks and flood-control features by the Department of the Army at Federal expense, either as a part of the initial construction or at a later date. In the event that nonpower features are to be provided as part of the initial construction, an allocation of costs to such features shall be approved by the Federal Power Commission taking into consideration recommendations by the Department of the Army and licensee, and funds to cover such costs may be appropriated and may be transferred by the Chief of Engineers to the licensee. If such navigation and flood-control facilities are not provided initially the licensee shall provide at its own expense the basic features for future installation of navigation and flood-control facilities.

It is just merely clarifying language again on the part of the Army engineers that they wanted in the bill.

Mr. MACK. Mr. Holmes, that really means that the Federal Government will obtain some benefits from this in that the licensee will be required to provide part of the flood-control facilities as he constructs the dam. Is that right?

Mr. HOLMES. That is right.

Mr. MACK. And that will include possibly a wider base, and such facilities as that?

Mr. HOLMES. Yes. You see, all of these matters have to be worked over and the Army engineers will be in on all of these matters in relation to the licensee before the Federal Power Commission.

Mr. MACK. The licensee is to stand the expense of any of this additional work provided we do not go into flood control from the very start.

Mr. HOLMES. If necessary.

Mr. MACK. Are there any other questions on that?

(No response.)

Mr. HOLMES. Section 5 is a new section. This was requested by the Army engineers.

> Upon request by the licensee the Corps of Engineers under direction of the Secretary of the Army shall be authorized to receive contributed funds and act as constructing agency for part or all of the project, including acquisition of lands, easements, rights-of-way, or other interest in land in accordance with Federal laws and procedures governing flood-control projects and subsequent conveyance thereof to the licensee.

That is merely to take care of the technicalities such as condemnation proceedings, and so forth.

Mr. MACK. I understand if this project is constructed it will be necessary for the licensee to acquire some 3,800 acres of land now owned by the Federal Government.

Mr. HOLMES. That is right.

Mr. MACK. That land, as I understand it, is in a reclamation project and has a value to the Government of about $140 an acre. Will the Federal Public Power Commission decide as to the acquisition of that

land and the necessity of the licensee paying the Federal Government for that 3,800 acres?

Mr. HOLMES (reading):

> The Corps of Engineers under the direction of the Secretary of the Army shall be authorized to receive contributed funds and act as constructing agency for part or all of the project, including acquisition of lands * * *

Mr. MACK. But the licensee will pay for that land?

Mr. HOLMES. Oh, yes. And they have the money to pay for it.

Mr. MACK. That will be about a half a million dollars?

Mr. HOLMES. They are able and ready.

Mr. MACK. Are there any questions?

Mr. STAUFFER. Who is the licensee now, Mr. Chairman?

Mr. MACK. Under this proposal it is a group of 28 counties and municipalities that have public-power districts. It represents about 600,000 people.

Mr. ANGELL. Mr. Chairman, may I inquire here?

Mr. MACK. Mr. Angell.

Mr. ANGELL. Will it be a separate entity and a corporation that will be the licensee, or will it be all of those agencies you have named?

Mr. HOLMES. All of those. The Grant County PUD and those affiliated with them as charter members of the group.

Mr. ANGELL. As a licensed separate corporation?

Mr. HOLMES. That is right. It is my understanding.

Mr. ANGELL. It will be a difficult situation from the standpoint of handling if the licensees are to be in separate agencies you have named.

Mr. MACK. My understanding, Mr. Angell, is that the 28 municipalities and county organizations will form 1 operating company and will in essence be stockholders in that corporation. Is that correct?

Mr. HOLMES. That is right.

Mr. MACK. Evidently they would have to have that kind of a setup because they could not deal with 28 or 30 separate entities.

Mr. HOLMES. If they come under what is known as operating agency No. 1, now forming under State law of the Washington State Power Commission.

Mr. MACK. That organization will have to have bylaws and a charter.

Mr. HOLMES. Yes, sir.

Mr. MACK. And that also will have to be authorized by the Federal Power Commission, I assume.

Mr. HOLMES. I would imagine so in granting the license for the dam.

Mr. ANGELL. It would be a State of Washington corporation?

Mr. MACK. Oh, yes. Under the State power commission.

Mr. HOLMES. Of the State of Washington.

Mr. ANGELL. Does the State law provide for the formation of such a corporation?

Mr. HOLMES. Yes, as a State organization under the State power-commission law.

Mr. MACK. That is a new law enacted in the last legislature; is it not?

Mr. HOLMES. Yes, sir.

Mr. MACK. You may proceed, Mr. Holmes.

Mr. HOLMES. Section 6 in the new bill is a new section:

The operation and maintenance of a project under license pursuant to this act shall be subject to reasonable rules and regulations by the Secretary of the Army in the interest of flood control and navigation.

That is really clarifying language that the Army engineers thought would be beneficial in relation to their interest in the matter.

Section 4 of the original bill becomes section 7 of the amended bill and reads:

If an application for a—

the words—

license under the Federal Power Act to authorize the development of the Priest Rapids site—

have been removed from section of the original bill—

preliminary permit for a license under the Federal Power Act to authorize the development of the Priest Rapids site is not prosecuted with reasonable diligence before the Federal Power Commission and in any event if the license application is not filed with the Federal Power Commission prior to the date which is 2 years after the date of the enactment of this act, the provisions of this act shall not be effective after such date and the authorization for the development of the Priest Rapids site contained in the Flood Control Act of 1950 shall have the same status it would have had if this act had not been enacted.

That new language is really to pin down the fact that these people are asking for a chance to go before the Federal Power Commission and are asking for a 2-year period to do so to qualify, with 1 year set aside for their hearing before the Federal Power Commission. All that language does is just to pin down the fact that this organization has to pursue this procedure with diligence and within the time limits prescribed in the bill.

Mr. MACK. What happens, Mr. Holmes, if after a period of a year you have made your case before the Federal Power Commission and then it rejects your request for the license?

Mr. HOLMES. Then the provisions of the bill specifically and definitely state that the authorization returns to the Army engineers in its status quo, just as if the legislation had never been introduced.

Mr. MACK. It would not continue this on for a period of 3 years; would it?

Mr. HOLMES. It would continue on for the period allowed in the bill; that is, the 2 years to make application and for the year before the Federal Power Commission.

Mr. MACK. I am talking about if the Commission rejected the application. Does it automatically and immediately return it to the present status?

Mr. HOLMES. I understand so.

Mr. MACK. I think Mr. Watts says there is language to that effect in the bill.

Mr. HOLMES. You remember, Mr. Watts, you brought that up at the last hearing we had.

Mr. MACK. I remember Mr. Watts' question, and that is why I asked him on that point.

Mr. HOLMES. It just pins it down further, Mr. Watts.

Mr. MACK. You may proceed, Mr. Holmes.

Mr. HOLMES. Then it continues on down:

In the event an application for a license is made and denied by the Federal Power Commission, or if construction under a license is not carried out in a reasonable period of time as determined by the Federal Power Commission, the authorization in the Flood Control Act of 1950 will have the same status it would have had if this act had not been enacted. Notwithstanding any other provision of law, the Federal Power Commission shall act, on any such application filed with it prior to such date, within 1 year after the date on which such application is filed.

Gentlemen, we have offered these words printed in capitals in this typewritten copy merely as a convenience to you to show the changes we wanted to make in H. R. 4898 after long consultation and several meetings on the part of the manager and representatives of the Grant County Public Utility District with General Itschner and his aides, and the Army engineers. They are quite acceptable to me and to the people of operating agency No. 1, and we hope that they are acceptable to you. We feel that they are acceptable to the Army engineers.

Mr. ANGELL. Mr. Chairman, may I ask one question?

Mr. MACK. Mr. Angell.

Mr. ANGELL. Mr. Holmes, are you introducing a clean bill embodying these changes?

Mr. HOLMES. I shall be very happy to do so if you people want to take action on this bill, and we hope you will as soon as you can. We hope you will incorporate these changes and I would be delighted to give you a clean bill to introduce before the committee.

Mr. ANGELL. It seems to me that a clean bill is necessary so that we might have the printed copy of the entire bill with the changes for careful study.

Mr. MACK. I think that is correct.

Mr. HOLMES. I will be very happy to do it as soon as we can, with these amendments. The reason why it was not done is that I talked it over with the chairman a week or 10 days ago, you remember, Congressman Mack.

Mr. MACK. Yes.

Mr. HOLMES. And we thought maybe you people would be interested in these amendments and they would be acceptable to you. In turn we did not know whether you wanted to make some changes, or whether the Army engineers were going to have some additional changes to make. I do not know that they have.

But I would be very happy to introduce that clean bill for you to use in relation to your proceedings.

Mr. MACK. Without objection, we will request Mr. Holmes to do that, and Mr. Magnuson also.

There are several questions on this I would like to ask you, Mr. Holmes.

If and when this application should reach the Federal Power Commission, the Federal Power Commission then would have to be satisfied that the Grant County Public Utility District and its associates are not only willing to build the dam, but they are able to do so financially and to provide the management that will make it a success. That would be for their determination; would it not?

Mr. HOLMES. Yes, sir. And that would certainly be carefully gone into.

Mr. MACK. Also the Federal Power Commission would have to be satisfied that the fish-ladder facilities in the dam were constructed in such a way as to be satisfactory?

Mr. HOLMES. Yes, sir.

Mr. MACK. And they would undoubtedly in their license place provisions that the Army engineers would have jurisdiction over determining the type of structure necessary for protecting the flood control and navigation interests?

Mr. HOLMES. It states right in here in this bill with these new amendments that the Army will be working with the Federal Power Commission on such matters.

Mr. MACK. And the Federal Power Commission also would place certain provisions in the license that would insure that the entire region, that is, all of the Pacific Northwest States, would secure their power at fair and equitable rates?

Mr. HOLMES. I am sure of that because they have been doing that for a period of many, many years in handling their problems for the licensing of various dams.

Mr. MACK. The Federal Power Commission would also include provisions that the Federal Government was to be paid for any land in the area which the Federal Government happens to own?

Mr. HOLMES. Yes, sir.

Mr. MACK. Would the Federal Power Commission place something in the license that would put specifications in as to if and when and the time when the second dam was to be constructed?

Mr. HOLMES. That I cannot answer as to what the Federal Power Commission would do, but thy would undoubtedly take that into consideration. If the Army engineers and the engineers of the operating unit No. 1 and the Federal Power Commission will all go over this construction setup, I am certain they will do what they see wise and fit to do.

Mr. MACK. Your bill specifies you will develop the maximum capacity of the site.

Mr. HOLMES. That is right.

Mr. MACK. That necessitates some arrangement not only for the building of one dam, but probably two dams.

Mr. HOLMES. Probably so. Yes, sir.

Mr. MACK. Any further questions?

Mr. STAUFFER. Mr. Chairman.

Mr. MACK. Mr. Stauffer.

Mr. STAUFFER. Do I understand if the Federal Government through the Army engineers decided not to put in any facilities for flood control or navigation, that it will bear no cost of the construction of this dam?

Mr. HOLMES. That is right.

Mr. STAUFFER. In other words, there is no subsidy by the Federal Government by reason of flood control and navigation in this bill?

Mr. HOLMES. Oh, yes, sir. There would be. I though you asked me if there was not going to be consideration of the flood control and navigation. Oh, yes. Most certainly there is obligation on the part of the Government to assume the flood control and navigation.

Mr. STAUFFER. But if the Federal Government through the Army engineers decides not to put in any flood control or navigation facilities, then——

Mr. HOLMES. Then there would be no obligation.

Mr. STAUFFER. There would be no obligation for the Federal Government to contribute in any way to the cost of this dam?

Mr. HOLMES. No. However, there would be some flood control.

Mr. MACK. Mr. Holmes, as I understand it, there is storage in this dam that would be used for the purpose of firming up the power of downstream dams? There is some storage for flood control but it would not be for firming up the power of downstream dams. Is that right?

Mr. HOLMES. Not to a great extent but of course some.

Mr. STAUFFER. Naturally, it would firm up the power downstream. It must go on downstream and add water to the facilities downstream.

Mr. MACK. I understand the purpose of a storage dam is to build up a big backlog of water which can be released at certain seasons of low water to firm up the power of downstream dams. These dams store water at a high-flow season and release it in low-water seasons.

Mr. STAUFFER. For power purposes the cost of a storage dam is very much in excess of the benefits you can get out of them. The storage of water for power purposes is a costly proposition and can never be justified, in my opinion.

Mr. MACK. Are there any other questions?

Mr. JONES. I would like to ask a question.

Mr. MACK. Mr. Jones.

Mr. JONES. Is this an amendment of the Flood Control Act? I mean by that, does it have any authorization for either 308 reports, or a specific authorization to the Corps of Engineers or the Department of the Interior to undertake similar work on this project?

Mr. HOLMES. In answer to your question, Mr. Jones, this project of Priest Rapids has already been authorized to the Army engineers by the Congress.

Mr. JONES. So it is an amendment to an existing Flood Control Act?

Mr. HOLMES. A modification for a period—a modification of that authorization to give these people a chance to see if they can build this dam for a period of 2 years, plus 1-year trial period before the Federal Power Commission. When that is over it goes back in its status quo to the Army engineers.

Mr. JONES. But it takes the joint work by the Corps of Engineers and the district out there to construct this dam to carry out the multipurpose project.

Mr. HOLMES. The joint activities of the Corps of Engineers and their own construction engineers and the Federal Power Commission, to do that. Yes, sir.

Mr. JONES. So, I imagine the corps will build it and you will reimburse them for the pro rata cost of it?

Mr. HOLMES. It is not the plan for the corps to build it. It is the plan for the Harza Engineering & Construction Co. to build it, with the supervision of the Army engineers working with the Federal Power Commission, and the financing is to be forthcoming from revenue bonds.

Mr. JONES. Why do you defer all these questions to the Federal Power Commission? If there is a meeting of the minds between the group you say you represent and the Corps of Engineers to build it, you can propose it to this committee and let us authorize it without

deferring all of these questions both to the Federal Power Commission and the corps.

Mr. HOLMES. The Federal Power Commission has to pass on any dam——

Mr. JONES. If we amend the Flood Control Act we can also amend the Federal Power Act completely to do the job, rather than leaving it up to them.

Mr. HOLMES. That is entirely up to the committee. I thought perhaps and suggest that the committee would follow the usual procedure that the Federal Power Commission would have the final word. I think they should.

Mr. JONES. Of course, these types of proposals are rather unique in that we have no policy in respect to them and so we are going to have them come before us more frequently than we have in the past. We should have some enunciation of policy with respect to making Federal investments in these types of developments without positive assurances that they are going to be given the same treatment as another project of its kind and character.

Mr. HOLMES. That is why I thought perhaps it would be submitted to the Federal Power Commission.

Mr. MACK. Are there any other questions?

Mr. ANGELL. Mr. Chairman, may I ask a question?

Mr. MACK. Mr. Angell.

Mr. ANGELL. Mr. Holmes, if this license is granted, this project will be carried out by the State—not by the Federal Government, but by the State?

Mr. HOLMES. By the operating unit No. 1.

Mr. ANGELL. It will be the first such project?

Mr. HOLMES. This legislation is pioneering the new legislation of the copartnership program, as outlined in principle by the present administration. It is the first piece of legislation along that line, and I think it is basically sound, and I think it will hold up.

Mr. ANGELL. Does this have the approval of the Interior Department?

Mr. HOLMES. Yes, sir.

Mr. MACK. The Interior Department has a statement submitted in the record.

Mr. WATTS. I would like to ask a question, Mr. Chairman.

Mr. MACK. Mr. Watts.

Mr. WATTS. I notice on page 1—and I am sure it is adequately covered—the following language:

> * * * in combination with such other utilities as it may legally affiliate with or by any division, subdivision, agency or commission of the State of Washington of which it may be a member * * *

Is that language adequate to cover anybody who wanted to come in?

Mr. HOLMES. Yes. They are forming their own organization out there, operating agency No. 1 of the Washington State Power Commission, under State law, and they have certain restrictions as to charter members, and so on and so forth, being drawn up in legal form within the organization of operating unit No. 1 itself.

Mr. WATTS. By the use of that language, "as it may legally affiliate," does it leave that Public Utility District No. 2 any discretion as to who should come in and who should not?

Mr. HOLMES. It does not leave any discretion. That is up to the State power commission in the State of Washington, under the laws of the State.

Mr. WATTS. In other words, there would be no way to pick 10 and leave 2 out, or pick 20 and leave 1 out, and alternate that way?

Mr. HOLMES. No, sir. That is right.

Mr. MACK. How long do other public utilities have to come in under their option to join this association?

Mr. SMOTHERS. They can join at any time in the future that the regulatory body will pass a similar enactment to those that have been passed by the members. It requires a unanimous vote of the charter members of the agency to admit them.

Mr. WATTS. I did not hear you too well. You mean, then, somebody is going to have to vote out there as to whether another district can get in or not?

Mr. SMOTHERS. After the original application is filed, which has been done, then under the law it requires a unanimous vote of the present members.

Mr. WATTS. Let me understand you, then. In other words, anybody who wants to come in before the application is filed will join together in the application. Is that your understanding?

Mr. SMOTHERS. That is right.

Mr. WATTS. And after the application is once filed, if some fellow changed his mind after that and wanted to come in he would be subject to the vote of the fellows who did apply?

Mr. SMOTHERS. That is right.

Mr. STAUFFER. Will the gentleman yield?

Mr. WATTS. I yield.

Mr. STAUFFER. The application has already been made, and there are only four districts that are in.

Mr. WATTS. Has the application already been made with the Federal Power Commission?

Mr. STAUFFER. No. With the State.

Mr. SMOTHERS. There are a total of 24.

Mr. HOLMES. There are 24.

Mr. ANGELL. Mr. Smothers, does that inlcude all PUD's in the State of Washington?

Mr. SMOTHERS. All but five small ones.

Mr. WATTS. What I want to get back to is, Who is going to apply for the license from the Federal Power Commission?

Mr. SMOTHERS. Operating agency No. 1.

Mr. HOLMES. Of which these people are composed.

Mr. WATTS. Who did you say?

Mr. HOLMES. Operating agency No. 1, which is the composition of these 24.

Mr. WATTS. It says in the bill, as I understand it, that public utility district No. 2 or such people as they desire to legally affiliate with or by any division, subdivision, agency, or commission of the State of Washington of which it may be a member, shall apply. Isn't that what you are talking about?

Mr. HOLMES. Yes, sir.

Mr. WATTS. Is that operating agency No. 1?

Mr. HOLMES. Yes, sir. And there are 24 who have asked to be in that organization now.

Mr. WATTS. The limitation that the gentleman back there put in a moment ago in regard to applying or joining before the application is made—Did you mean before the application to the Federal Power Commission or before the application to the Washington State Power Commission?

Mr. HOLMES. Before the Washington State Power Commission.

Mr. WATTS. And that has already been filed?

Mr. HOLMES. Yes.

Mr. WATTS. And everybody is in but five little ones?

Mr. HOLMES. Yes.

Mr. WATTS. Were they requested to or given an opportunity to come in?

Mr. HOLMES. Yes, sir.

Mr. WATTS. And they declined?

Mr. HOLMES. I don't know whether they declined. They just have not moved to come in.

Mr. MACK. You are still taking people in, aren't you, Mr. Holmes?

Mr. HOLMES. We can at any time after the original application.

Mr. MACK. By a unanimous vote.

You mentioned Clark County. I noticed in the newspapers the Clark County PUD had agreed to come in. You accepted them in the last few days, have you not?

Mr. HOLMES. The power commission hasn't passed on all who are applicants—the State power commission.

Mr. ANGELL. Mr. Holmes, may I ask, Has organization agency No. 1 been completed?

Mr. HOLMES. It has not been completed before the State power commission yet.

Mr. ANGELL. As an organization in the State of Washington has it been organized?

Mr. HOLMES. It has been organized but not passed on by the power commission of the State yet.

Mr. ANGELL. So it is not complete yet.

Mr. HOLMES. Finally complete. No.

Mr. ANGELL. I was wondering whether or not you could put in a clean bill with the name of the organization which is to secure the license without leaving the license in the air, as it now is.

Mr. WATTS. That is what I was getting at.

Mr. HOLMES. Are we to put in the name of operating agency No. 1?

Mr. ANGELL. That is the advisable thing to do, it seems to me, if it is organized. Then we are dealing with an existing organization. Here we are dealing with an unknown number of different and separate organizations.

Mr. NEAL. Mr. Chairman.

Mr. MACK. Dr. Neal.

Mr. NEAL. This Priest River is a navigation stream?

Mr. HOLMES. It is a location on the Columbia River. It is not a stream.

Mr. NEAL. It is on the Columbia River?

Mr. HOLMES. Yes, sir. It is a geographical spot there on the Columbia River.

Mr. NEAL. Is there navigation both above and below Priest Rapids?

Mr. HOLMES. Very little.

Mr. NEAL. Is it proposed that very much extension along that line will be made?

Mr. HOLMES. I imagine in years in the future there will be; yes.

Mr. NEAL. Does anybody have any idea as to what extent the Government would be involved, assuming that this organization is to build these two dams, in the eventual contribution that would have to be made by the Federal Government for navigation and flood control?

Mr. HOLMES. That would be entirely in the hands of the Army engineers, who have jurisdiction of the navigation.

Mr. NEAL. No estimate has been made?

Mr. HOLMES. Not of the navigation that I know of.

Mr. MACK. Are there other questions?

Mr. WATTS. I would like to ask one question.

Mr. MACK. Mr. Watts.

Mr. WATTS. I do not think this relates to it directly, but it is something that popped into my head. As I understand it, this new business provides that this entity, or the operating agency No. 1, is to provide the dam, and the Federal Government in the event the Army engineers decided to put in flood control and navigation, is to provide that portion of the cost.

Mr. HOLMES. Yes, sir.

Mr. WATTS. I suppose you arrived at the situation and left it optional with the Army engineers as to whether they should include that in the building of the dam. Is that right?

Mr. HOLMES. Yes, sir.

Mr. WATTS. Supposing once you get your license from the Federal Power Commission and the Army engineers indicated that flood control and navigation should be incorporated, that you ran into a tremendous amount of trouble with the Appropriations Committee in getting money.

Mr. HOLMES. That would not be done. That would be known before the formal license is issued.

Mr. WATTS. I see. But otherwise you might be stymied.

Mr. HOLMES. That is right.

Mr. WATTS. Even though you had your authorization.

Mr. HOLMES. That is right.

Mr. MACK. Are there further questions?

Mr. STAUFFER. Is there any great need for navigation?

Mr. HOLMES. Not at present, sir. But there are potential possibilities.

Mr. STAUFFER. Isn't it a fact that in Government-constructed dams for power purposes it has been customary in order to meet constitutional provisions that they must be constructed with navigational features?

Mr. HOLMES. It is my understanding.

Mr. STAUFFER. So if this is constructed by a private utility district it removes all necessity from a constitutional viewpoint for the Federal Government to construct navigational facilities?

Mr. HOLMES. No, I don't think so. I don't think the Army engineers would agree to that. You would have to ask General Itschner that.

Mr. ANGELL. There are no navigation facilities at Grand Coulee Dam above that.

Mr. HOLMES. No. There are none up there. Whatever the Army engineers may determine as to the necessity for navigation, it is provided in the bill to give the Army engineers and the constructing company for this unit the authority to work that out.

Mr. ANGELL. Do the proposals of the Army engineers provide for locks for navigation?

Mr. HOLMES. That I think is proposed by the Army engineers in the basic structure. Is that right?

General ITSCHNER. Just a provision for future locks.

Mr. ANGELL. But not in the construction of the dam?

Mr. HOLMES. I cannot answer all of the details on construction. I am not an engineer, Mr. Angell.

Mr. MACK. We will have the general later on. Are there any further questions?

Mr. NEAL. May I ask a question?

Mr. MACK. Mr. Neal.

Mr. NEAL. In making provision for future locks, would you be able to estimate the approximate increase in the amount of money over the original authorization which would be necessary to construct this?

Mr. HOLMES. That question would have to be directed to the Army engineers.

Mr. MACK. If you are through, let us call the general as a witness and let him make a statement, and then you can ask him that question, Mr. Neal.

Mr. Magnuson, did you have any statement to make?

Mr. HOLMES. In closing may I make this additional remark? This legislation has been worked on for a number of months in consultation with the Army engineers and with one of the finest engineering firms in America. It is pioneering new legislation on the copartnership basis—the first in the Congress of the United States. We think it is sound. We have good reports on it. We have the cooperation of the Army engineers on it, and I urge you people, as a very fine subcommittee of the Public Works Committee, to give it the most careful and rapid consideration you can. I really do, because we have had two hearings before you, and we think we have a very fine and finished proposition to offer to you this morning.

I thank you very much for the opportunity of appearing before you.

Mr. MACK. Thank you, Mr. Holmes.

We will hear from Mr. Magnuson.

STATEMENT OF HON. DON MAGNUSON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WASHINGTON—Resumed

Mr. MAGNUSON. Mr. Chairman, as you know, I am a cosponsor of this legislation. Mr. Holmes introduced H. R. 4898 and I introduced H. R. 4899, which is identical with 4898. Mr. Holmes has covered the changes very capably, I think, and very clearly and completely. I thought I might summarize the changes which are now being proposed and which were worked out through consultation mainly with the Army engineers, and also taking into consideration some of the points raised by the subcommittee at previous hearings.

As I said, I thought I might summarize this new language without specific reference to the language in the bill. The changes are these

from the old bill: The new bill spells out that the licensee must develop the optimum capabilities of the site, which was not too clearly spelled out in the original version, with reference to flood control, power, and navigation.

Of course, the flood control and navigation would be matters for future development, but the basic features must be installed by the licensee.

The new language also spells out that the Army shall review the licensee's plan, or the prospective licensee's plans as submitted, and shall make recommendations to the Federal Power Commission, with particular reference to flood control and navigation features. The license may provide for the addition of navigation and flood-control features by the Army at Federal expense, either now or in the future, that is, either at the time of construction or at some time in the future.

If it is decided they want the flood-control features and navigation features put in initially, the public utility district engineers and the Army engineers will submit their recommendations to the Federal Power Commission, which will make cost allocations after due consideration of these recommendations.

If the flood control and navigation are not provided in the initial structure, the licensee will build the basic structures at its own expense, providing for the addition of flood-control and navigation features later if the Government decides it wants to add those.

The new language makes it possible for the Army to acquire the reservoir lands, easements, and rights-of-way and other interests in lands which may be required, and convey them to the licensee.

The new language specifically spells out that the Department of the Army shall regulate flood control and navigation after the completion of the project. We took cognizance, as Mr. Holmes pointed out, of the very good point raised by Mr. Watts in the first hearing, providing—it was our original intention, or the intention all of the time—that if this licensee did not for any reason construct the dam that the authorization should revert to the Army and the project would go back into status quo with the Army engineers authorized to construct this dam.

Mr. Watts detected a flaw in the language, which I readily recognized after he pointed it out, and everybody else did, and I think now we have corrected that language so that there is no chance of eliminating the authorization which has already been granted by Congress to the Army engineers in the event that the dam is not built by this prospective licensee for any reason whatsoever; that is, either if the Federal Power Commission shall deny the license, or if the licensee should be unable to get financing, or for any other conceivable reason.

Mr. Holmes pointed out, and I concur, that this is in line, I think, with the general concept of water-resource development which has been outlined by the present Department of the Interior.

My great concern is to get some more power out there. We are facing a continuing shortage. Our energy demands double every 10 years. The development and expansion of our part of the country, in the Pacific Northwest, is dependent on bringing in some more of these hydroelectric sites. This proposes a plan which involves comparatively small expense for the Federal Government and none unless

flood control and navigation are added to the dam either at the time of construction or at sometime in the future.

I believe that completes my statement. If there are any questions I would be happy to try to answer them.

Mr. MACK. Are there any questions, Mr. Watts?

Mr. ANGELL. Mr. Chairman, may I ask, Is there a promoter connected with this in any way? Is there anyone contracting with the licensee to get a substantial fee for the promotion of the project?

Mr. MAGNUSON. I am sure there is not, Mr. Angell. If there is, it has never come to my attention. I am sure there is not. Of course, the Grant County PUD has been the moving force in this proposal. That is a municipal corporation owned by the freeholders of Grant County.

Mr. HOLMES. May I interject something there, Mr. Angell? There definitely is not. It is a nonprofit organization hiring their own construction set up. It is definitely a nonprofit organization.

Mr. MACK. Any questions to the right? To the left?

Mr. STAUFFER. Mr. Chairman.

Mr. MACK. Mr. Stauffer.

Mr. STAUFFER. Has any private utility corporation been interested in this site?

Mr. MAGNUSON. Not to my knowledge. I am not sure. Mr. Smothers says not. It is clear to all of you, I think, that this particular development is part of the comprehensive plan for the development of the Columbia River.

Mr. MACK. Are there any further questions?

(No response.)

Mr. MACK. Thank you, Mr. Magnuson, for your statement.

Now we call General Itschner. General Itschner is division engineer of the Seattle district, and of course is very familiar with the Pacific Northwest problems. We are happy to have you here, General.

STATEMENT OF BRIG. GEN. E. C. ITSCHNER, DEPUTY ASSISTANT CHIEF OF ENGINEERS FOR CIVIL WORKS

General ITSCHNER. Thank you, Mr. Chairman.

Authorization for the Priest Rapids Dam is contained in the Flood Control Act of 1950, substantially in accordance with the plans recommended in House Document No. 531, 71st Congress, 2d session. In that report the Priest Rapids project was recommended as an integral unit of a comprehensive plan for development of the Columbia River and its tributaries for flood control, navigation, power development, irrigation, and other purposes.

The reservoir would extend from river mile 397 on the Columbia River, that is, 73 miles above the mouth of the Snake River, upstream to the existing Rock Island Dam.

The Rock Island Dam is at the present time jointly owned by a private utility company and the Chelan County Public Utility District. The distance from the Priest Rapids dam site to Rock Island Dam is approximately 56 miles.

The project would provide for the storage of water up to elevation 590, which would make available 2,100,000 acre-feet of flood control storage above a minimum pool elevation of 540 feet. That amount of

flood control storage is an integral part of the flood control features of the comprehensive plan for the development of the Columbia River and its tributaries, and is essential for the effective flood control of that river, particularly downstream from The Dalles, Oregon.

The project would also develop an average head of about 146 feet, utilizing the flows as regulated by upstream storage projects, for the generation of hydroelectric power.

As recommended in House Document No. 531, provisions would be made at the Priest Rapids Dam for an ultimate installation of 1,590,000 kilowatts. It was not contemplated that a navigation lock would be provided initially. Provisions would be made in the initial development for future navigation facilities by constructing the portion of the lock walls through the dam together with a temporary bulkhead closure.

The initial power installation of 1,219,000 kilowatts with provisions for future navigation facilities and with 2,100,000 acre-feet of flood control storage constitute the project as planned.

Last June the Corps of Engineers had the opportunity of commenting on the proposed bill, H. R. 4898. At that time we concurred generally with that bill, but expressed certain objections to it because we felt that the interests of the United States were not being properly protected. Since that time, and particularly during the past month, we have had the opportunity of meeting several times with the proponents of this bill, and have had the opportunity of studying the amendments to that bill which your committee has before it today.

We at this time would like to state that we have no objection to the amendment to H. R. 4898, which is being considered. That is all the statement I have, Mr. Chairman. May I answer any questions you have?

Mr. MACK. This bill, in your estimation, protects the interests of the Government to the extent that it will assure development of the maximum power of the river?

General ITSCHNER. It does.

Mr. MACK. On that site?

General ITSCHNER. It does. Yes, sir.

Mr. MACK. Is there any storage in the Priest Rapids site for the generation of power downstream?

General ITSCHNER. Only a nominal amount which we normally call pondage for day-to-day fluctuations. It is 400,000 acre-feet maximum.

Mr. MACK. For power production?

General ITSCHNER. Yes, sir.

Mr. MACK. It is essentially a flood-control dam and not to increase power production?

General ITSCHNER. Most of the storage is for flood-control purposes. However, the dam is for both flood control and power production.

Mr. MACK. Mr. Stauffer said something here a moment ago that I would like to say something about. Mr. Stauffer said in his opinion these storage dams were not economically sound. I made some little study of Libby project. As I understand it, you can build that for about $284 million and it will provide 300,000 kilowatts at the site of installed capacity and will give about 700,000 kilowatts through the storage facility. If you can build a dam in that way through installations and storage that will provide a million kilowatts of

installed capacity for $284 million, that is a pretty reasonable cost for the structure, is it not, compared to other dams on the river?

General ITSCHNER. Yes; it is. Storage in a hydroelectric project is of great value in some cases and in other cases it cannot be justified economically. It depends on the cost of obtaining this storage and the use to be made of the stored water at dams located downstream, and particularly what type of storage you are providing for. If Mr. Stauffer meant, and I presume he did, that cyclical storage was not economically feasible, in many cases I certainly agree. It is very rare that you can get cyclical storage, that is, storage held over from one year to another, and have it pay for itself. On the other hand, daily or even weekly storage is almost always justified. Annual storage is an intermediate type of storage, which is economically justified under favorable conditions.

We have annual storage at Albeni Falls Dam. The first year that dam was put into operation, the winter before this present one, we stored 1,140,000 acre-feet of water in back of that dam and released it during the brownout period, when power was so short in the Pacific Northwest. That water was valued at the equivalent of $3 million, based on the cost of operating that amount of electricity by steam. So it was extremely valuable.

Mr. MACK. That $3 million would be about 9 percent of the total cost of the project?

General ITSCHNER. Between 9 and 10 percent of it. So it was well worthwhile.

In other cases, where a dam stores water on a cyclical basis, that is, it stores it 1 year for use perhaps many years later, it is very rare, indeed, that it can ever be justified.

Mr. MACK. Are there any questions?

Mr. JONES. Mr. Chairman.

Mr. MACK. Mr. Jones.

Mr. JONES. General, I would like to have a brief on the questions you are referring to the Federal Power Commission and also some comment from the corps as to whether or not those questions cannot be resolved by this committee in writing the complete legislation here, because as I understand it you are going to have several proposals of this character to be considered by this committee this year, and it would seem to me if this is a new course then we should have some fixed Federal policy with respect to the development of the projects, where one phase of it will be undertaken by local interests and the other portions are to be developed at Federal cost. So I hope that we cannot just talk about the questions that are going to be referred to the Federal Power Commission, but see if we cannot resolve them here.

General ITSCHNER. The Public Utility District No. 2 of Grant County, who is the proponent of this bill, has retained an engineering firm to make studies. These studies have not progressed far enough at this time for them or for us to comment on the most desirable type of development in this area.

For instance, there is a question as to whether there should be built 1 dam or 2. The cost estimates are not yet available, I believe. At least we have not been able to obtain them.

Mr. JONES. We could accomplish the same thing by a simple deauthorization resolution, couldn't we, and then let the applicant go before the Federal Power Commission and obtain a license?

General ITSCHNER. We would be very reluctant to agree to a complete deauthorization because we would like to have this project still authorized on a conditional basis in case the Grant County Public Utility District was unable to go forward with the project.

Mr. JONES. That is the very point I am raising, because I understand that the corps has under consideration other projects now on which they are going to come in and ask this committee for deauthorizations. So if we are going to deauthorize and let the Federal Power Commission determine who should be the licensee, we should do it with all types of that project.

General ITSCHNER. The only projects we are recommending for deauthorization are those that are now found to be undesirable or unwanted for some reason or other. They are the poorest, perhaps 10 percent, of the projects remaining on the books at this time.

Mr. JONES. Does the corps intend to present to the committee a review of those projects that are considered undesirable and not justifiable for the expenditure of Federal funds?

General ITSCHNER. Yes, sir. We have submitted such a list to the Bureau of the Budget and we presume that that list will be submitted to the committee.

Mr. MACK. General, in effect this bill does deauthorize this project at least temporarily to give the local agency an opportunity to go in and apply for a license to build it; does it not?

General ITSCHNER. Yes, sir. It is a deauthorization contingent upon performance by the operating agency.

Mr. MACK. If the Federal Government or the Congress in 1950 had not authorized this project, then this organization would have the right now to go to the Federal Power Commission and make application for a permit to build this project without any consideration by the Congress; would it not?

General ITSCHNER. That is correct, sir.

Mr. WATTS. Mr. Chairman.

Mr. MACK. Mr. Watts.

Mr. WATT. General, as I understand it, the method of deauthorization you are using in this particular bill means limiting the application to the Federal Power Commission to this particular group, whereas a general deauthorization would open it wide. Is that right?

General ITSCHNER. That is correct.

Mr. JONES. Just a minute. We have a preference in the Federal Power Act. They would have preference over any other group, would they not, General? The preference in the Federal Power Act itself would insure this group would receive top priority.

General ITSCHNER. I understand there is a provision in the Federal Power Act which provides that municipalities and other local government agencies have priority.

Mr. JONES. So they are not going to lose anything if the complete deauthorization is passed? They would not lose that power under the Federal Power Act?

General ITSCHNER. Certainly they will not lose any privileges they have under the Federal Power Act.

Mr. WATTS. Will the gentleman yield?

Mr. JONES. Yes.

Mr. WATTS. There may be other groups whose priority under the present Federal Power Commission Act might be equal with these. Then all of those would be put on an equal basis in applying for a license; would they not?

General ITSCHNER. I believe that is correct. I might say I do not know of any others interested in this project at this time. There may be, but I do not know.

Mr. WATTS. There may be. But if you generally deauthorized it it will allow anybody to apply for a license?

General ITSCHNER. That is correct.

Mr. WATTS. Of course, the Federal Power Commission under its act would have to award that license according to the authority it has and the preference that the law lays down amongst the different applicants which would permit anybody to apply, whereas with the passage of this act it applies only to this particular group.

General ITSCHNER. That is right. But there is a difference here which I am sure you recognize. That is, this act provides that the Federal Government can contribute to the navigation and power costs in proportion to those benefits, if any.

Mr. WATTS. The other difference is in the event that this project falls through so far as the power unit is concerned, the law remains as it is and it is still a Government project.

General ITSCHNER. Yes, sir, although I presume a general deauthorization act might specify the same thing as far as this particular project is concerned.

Mr. WATTS. Under Document 531 have the Army engineers made any plans as to how many dams would be in this vicinity or at this site?

General ITSCHNER. The type of plans that are generally made in an overall report such as that contained in Document 531 are just very general plans.

Mr. WATTS. The plans for the public utility district have not been completed either?

General ITSCHNER. No, sir. Not to my knowledge.

Mr. WATTS. But the bill is so phrased that they will have to comply with the requirements of the Army engineers in connection with flood control and navigation and also any other features?

General ITSCHNER. That is correct.

Mr. MACK. Are there other questions?

Mr. NEAL. Mr. Chairman.

Mr. MACK. Dr. Neal.

Mr. NEAL. I want to ask this question, General. Of course, it might be rather difficult to answer, but ordinarily in construction of this sort where the public-utility organization assumes their proportionate share of constructing this work, and you incorporate flood-control and navigational facilities and enter those things into the cost, my question is, Is there any way of estimating the comparative amount of outlay that will be allocated as between the Government on the one hand and the public-utility interests on the other?

General ITSCHNER. This particular project, sir, is on a reach of the Columbia River which is not as yet incorporated in a navigable waterway project of the Corps of Engineers. There is no navigation project in this stretch. The Rock Island Dam is the next dam upstream

which, as I mentioned before, was originally owned by a private utility corporation and is now owned or at least controlled jointly by a private utility company and a public utility district, and has no provision for navigation locks. They could be put in, but they would have to be put in through a portion of the dam site which was not especially prepared for that purpose. It probably would be constructed through one abutment of the dam.

Mr. NEAL. And if done in the future, it would be done, of course, at the expense of the United States Government?

General ITSCHNER. That is correct, sir.

Mr. NEAL. Yes.

General ITSCHNER. We presume that. In this particular instance we plan the original project to provide only for what might be called a plug section of the dam which could later be taken out and locks substituted therefor, with a small length of lock wall. We do know that there is a difference in cost between the dam if it were constructed without any provision for future navigation facilities and if it were not so constructed. Our best estimate at this time of that difference is something in the vicinity of $9 million. It was $6 million in 1948, when it was originally estimated. So that $9 million would represent the added cost of the dam at this time for the possible future navigation facilities.

As for the cost of the locks themselves, we estimate that the total cost of getting navigation up to the dam upstream—the Rock Island Dam—would be something in the order of about $40 million, of which the major portion would be for the locks through the Priest Rapids Dam.

These figures I have given you are all very tentative ones because we have not yet made our plans, as you know.

Mr. NEAL. In regard to the flood-control expenditures, about how do you estimate that?

General ITSCHNER. We estimate the added cost for flood-control features to obtain the 2,100,000 acre-feet of storage, to be about $65 million at current costs.

Mr. NEAL. So if you would provide for flood control, that is, if, in this particular project, you would provide for future navigation and also provide for the flood-control features, you would have approximately what—$65 million to $70 million?

General ITSCHNER. Yes, sir. That is approximately correct.

Mr. NEAL. Out of a total cost for the whole project of what? What is the estimate?

General ITSCHNER. Our estimate on the total cost of the project is $364 million, approximately.

Mr. NEAL. I think that answers my question. Thank you.

Mr. ANGELL. Mr. Chairman.

Mr. MACK. Mr. Angell.

Mr. ANGELL. Your answer has reference only to 1 dam, or does it refer to 2 dams?

General ITSCHNER. All of our plans, sir, are based upon one dam and would apply to one dam.

Mr. ANGELL. One high dam?

General ITSCHNER. Yes, sir.

Mr. ANGELL. Your plans would not be germane then to the plan now being contemplated by the licensee, would they?

General ITSCHNER. We do not know at this time whether the licensee is going to construct 1 dam or 2 dams and we understand that is to be the subject of further study. I will say, however, that as far as the navigational facilities are concerned, there would not be a great deal of difference between the cost because we would have to have two locks at the high dam owing to the great lift, and they would be in tandem, and consequently the difference in cost would be relatively little.

Mr. ANGELL. That is, the difference in the cost of transportation through 2 dams or through 1 dam?

General ITSCHNER. They would be very close to the same for that reason.

Mr. MACK. All of the evidence this committee has is that the same amount of power essentially will be generated whether we have 2 dams or 1 dam.

General ITSCHNER. There is no reason why approximately the same amount cannot be generated. If it is designed with that in mind the same amount of power would be available at 2 dams as with 1 dam.

Mr. MACK. The drop is the same in the 2 dams and in 1 dam and the volume of water is the same.

General ITSCHNER. That is correct.

Mr. MACK. The electricity generated by the volume of water is approximately the same.

General ITSCHNER. That is correct. With the one dam it is not contemplated that there will be much drawdown of the pool. If there were, of course the benefit would accrue in the 2 dams over the 1, but in this case since there is very little drawdown the amount of power generated should be approximately the same.

Mr. WATTS. What are the big differences between a dam constructed with flood-control features and without flood-control features?

General ITSCHNER. The only difference in this case is the amount of space available above a certain elevation. In other words, in order to incorporate flood-control storage in this particular project we must build the dam higher.

Mr. ANGELL. That would require a wider base, would it not, initially?

General ITSCHNER. What was that?

Mr. ANGELL. A wider base?

General ITSCHNER. Yes. In order to support a higher dam. Actually the difference in elevation between this dam built for power alone, and for power plus storage for flood-control purposes, is 40 feet vertical elevation. In other words, the dam must be built 40 feet higher.

Mr. ANGELL. As I understand it, this proposal, however, provides that the licensee will provide at its own expense that extra width, or whatever is necessary, so that the Government if it eventually desires to build the dam higher, can do so.

General ITSCHNER. That is correct.

Mr. ANGELL. And it will provide that at its own expense initially?

General ITSCHNER. It will provide it at its own expense initially unless the Federal Government decides at the beginning to put in the flood-control features. In that case the Federal Government would pay for the wider base plus the cost of raising the dam the additional 40 feet.

Mr. TRIMBLE. Mr. Chairman.

Mr. MACK. Mr. Trimble.

Mr. TRIMBLE. General, as it is on all of these projects there are certain amounts of money that are necessary expended for plans, surveys, and specifications. How much has been expended on this project?

General ITSCHNER. We have never had any planning funds on this project as such. It was studied as part of the overall development of the Columbia Basin and its tributaries, and consequently was only one out of a great many sites considered. So I cannot give you that figure because it was never broken down. But I will say it is a rather small sum.

Mr. TRIMBLE. It is just one item out of many. Whatever the amount was, in this setup if this bill is passed and becomes a law, and if the licensee is granted a permit by the Federal Power Commission, is that cost repaid to the Government? What provision is made for the reimbursement of the cost?

General ITSCHNER. The cost of the studies?

Mr. TRIMBLE. Yes.

General ITSCHNER. There is no provision made here for the return to the Government of the cost of that study.

Mr. HOLMES. If you would let me, could I interrupt there? It is my understanding, Mr. Trimble, that the costs of the planning and all that are being assumed by this Operating Unit No. 1 and Grant County Public Utility District II. We are not asking for any money in this bill at all.

Mr. MACK. Mr. Smith.

Mr. SMITH. General, in the event that this dam or these two dams, or this project, at any rate, is built by the proposed licensee, then in the operation of the dam would the Corps of Engineers have the same priority in operating the dam for flood control as they have in their own installations on the Columbia?

General ITSCHNER. Yes, sir; it would for flood-control purposes.

Mr. MACK. Are there any further questions?

(No response.)

Mr. MACK. Thank you very much, General Itschner, for your testimony.

I think that completes the hearing for today, if there are no further witnesses. The committee will remain for just a minute.

(Whereupon, at 11:25 a. m. the committee adjourned.)

(The following was received for insertion:)

SEATTLE CHAMBER OF COMMERCE,
Washington 5, D. C., January 29, 1954.

Hon. RUSSELL V. MACK,
Chairman, Subcommittee on Flood Control,
House Committee on Public Works,
House Office Building, Washington 25, D. C.

DEAR Mr. MACK: The Seattle Chamber of Commerce wishes to place itself on record as endorsing the bill sponsored by the Honorable Hal Holmes, H. R. 4898, currently under consideration by your subcommittee and the House Public Works Committee.

The Seattle Chamber of Commerce believes that H. R. 4898 will implement the policy endorsed by President Eisenhower to advance hydroelectric and water resources development under a formula of Federal-State copartnership. It is the belief of this organization that the Priest Rapids project on the Columbia River, which the Grant County Public Utility District of Washington State

proposes to construct in cooperation with the Federal Government, provides an excellent medium for State-Federal cooperation in meeting the increasing hydroelectric energy needs of the Pacific Northwest and would supplement the Federal program to develop the full generating potential of the Columbia River.

Because the Priest Rapids project is already authorized by Congress, and the bill offered by Mr. Holmes provides a sound and sensible approach for the implementation of the copartnership program policy of the administration, the Seattle Chamber of Commerce urges early consideration of this bill by your committee and the Congress.

We request, also, that this letter be made a part of the record of your subcommittee.

Respectfully yours,

GEORGE E. THOMAS,
Assistant General Manager.

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